

Senior Managers

NCEA Senior Management

NAME: Peter Preuss

POSITION: Director
National Center for Environmental Assessment

EXPERTISE: risk assessment and its applications, science policy and law, and the use of comparative risk assessment as a tool in setting environmental priorities, both in this country and abroad

MAJOR ACTIVITIES in NCEA: Oversee all major activities in NCEA and innovative approaches to risk assessment

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
Columbia University, New York, NY	PhD	1967	Biology
Columbia University, New York, NY	MS	1965	Biology
College University, New York, NY	BS	1963	Chemistry and Math

RELEVANT PROFESSIONAL EXPERIENCE:

2003 – Present Director, National Center for Environmental Assessment
(NCEA) ORD, EPA

1997 – 2003 Director, National Center for Environmental Research, ORD, EPA

1988 – 1997 Director, Office of Science Policy, ORD, EPA

1985 – 1988 Director, and Deputy, Office of Health and Environmental
Assessment, EPA

1979 – 1985 Associate Executive Director, Directorate for Health Sciences,
U.S. Consumer Product Safety Commission

1974 – 1979 Director, Toxic Substance Program,
New Jersey Department of Environmental Protection

1971 – 1974 Senior Staff Scientist, Environmental Protection Service,
Office of the Prime Minister, Jerusalem, Israel

1968 – 1971 Research Associate, Department of Organic Chemistry,
The Hebrew University of Jerusalem
Developed risk capabilities in the Czech Republic, Slovakia, and in
the Middle East.

SELECTED AWARDS and HONORS

President's Award for Meritorious Service – 1992, 1998, 2006
Outstanding Risk Practitioner of the Year Award (SRA)
Award for Outstanding Service 2002-2006.

INVITED LECTURES/SYMPOSIA:

Regional Risk Assessors Meeting – July 2007
Society of Toxicology Annual Meeting – March 2007
SRA/SETAC Regional conference – March 2007
American Chemistry Council meeting on Advanced Risk Assessment –
November 2006

RELEVANT PROFESSIONAL ACTIVITIES

Editorial Board for Risk Analysis
Chair of the International Committee to Environmental Health in Israel

NAME: John J. Vandenberg

POSITION: Associate Director for Health

EXPERTISE: Risk Assessment, Inhalation Toxicology

MAJOR ACTIVITIES in NCEA: Provide leadership and direction for HHRA program across NCEA planning, peer-review and clearance of products, represent HHRA program within ORD and EPA Program Offices and Regions, OMB, and other Federal Agencies.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
College of Wooster, Wooster, OH	B.A.	1978	Biology
Duke University, Durham NC	M.S.	1982	Biophysical Ecology
Duke University, Durham NC	Ph.D.	1987	Biophysical Ecology

RELEVANT PROFESSIONAL EXPERIENCE:

1984- 1988 Environmental Protection Specialist, OAQPS, EPA, RTP, NC
1988- 1988 Environmental Scientist, Calif. Dept. Hlth Svs, Berkeley, CA
1989 -1991 Environmental Scientist, OAQPS, EPA, RTP, NC
1991- 1993 Director, Research to Improve Health Risk Assessments Program, HERL, EPA, RTP, NC
1992 - 2000 Adjunct Assistant Professor, Nicholas School of the Environment, Duke University, Durham, NC
1993 - 1996 Associate Director for Multimedia Research, HERL, EPA, RTP, NC
1996 - 1999 Assistant Director for Air Research, HERL, EPA, RTP, NC
1999 - 2001 National Research Program Dir. for PM, NEERL, EPA, RTP, NC
2000 - 2001 Adj Professor, Nicholas School of the Environment and Earth Sciences, Duke Univ., Durham, NC
2001 - 2002 Director (acting) Experimental Toxicology Division, NHEERL, RTP
2002 - 2003 Director (acting) Human Studies Division, NHEERL, EPA, RTP, NC
2004- Present Associate Director for Health, NCEA, EPA, Washington, DC

SELECTED AWARDS and HONORS

Performance awards

Bronze Medal for Commendable Service, ORD, 2004, 2004

Elected Fellow, Society for Risk Analysis, 2006

RELEVANT PROFESSIONAL ACTIVITIES:

Member, Advisory Committee, Harvard Center for Risk Analysis, Boston, MA

1993-1997; 2001- present

Councilor, Society for Risk Analysis- national elected position -1999-2002

Member, Aerosol Research Inhalation Epidemiological Study (ARIES) Scientific Advisory Committee, Electric Power Research Institute, Palo Alto, CA, 2000-present

Member, Vulnerable Populations Research Program External Advisory Committee, California Air Resources Board, Sacramento, CA 2001- present

Chair, Working Group on Urban Air Quality Policy Alternatives, WHO-JRC-ECA workshop, Bonn Germany 2002

Member, International Steering Committee, NERAM Colloquium, Baltimore MD 2002

Member, International Steering Committee, AIR/NET Colloquium, Rome, Italy 2003

Member, External Scientific Advisory Committee, National Environmental Respiratory Center, Lovelace Respiratory Research Institute, Albuquerque, NM, 1998-2003.

Member, Scientific Advisory Committee, Southern California Particle Center and Supersite, Los Angeles, CA, 2000-2005.

Member, External Scientific Advisory Committee, Particulate Matter Research Center, Johns Hopkins University, 2006- present

Member Society for Risk Analysis

Member Air and Waste Management Association

Member International Society of Exposure Analysis

PEER –REVIEWED PUBLICATIONS

Nadadur, S.S., Miller, A., Hopke, P.K., Gordon, T., Vedal, S., **Vandenberg, J.J.**, and D. L. Costa. The Complexities of Air Pollution Regulation: the Need for an Integrated Research and Regulatory Perspective. *Tox. Sci* (2007, accepted).

Preuss, P. W.; **Vandenberg, J. J.**; Tuxen, L.; Cote, I. L. (2007) Risk assessment at the USEPA: the science behind the assessments. *Hum. Ecol. Risk Assess.* 13: 41-45.

Vandenberg, J. J. (2005) The role of air quality management programs in improving public health: a brief synopsis. *J. Allergy Clin. Immunol.* 115: 334-336.

Krzyzanowski, M.; **Vandenberg, J.**; Stieb, D. (2005) Perspectives on air quality policy issues in Europe and North America. *J. Toxicol. Environ. Health Part A* 68: 1057-1061.

Whalan, J.E., G.L. Foureman, and **J.J. Vandenberg**. Inhalation risk assessment at the Environmental Protection Agency. In: *Inhalation Toxicology, Part I: Inhalation Toxicology Methods and Measurements* (pages 4-35). 2005.

Vandenberg, J.J. and W. F. Boyes. Exposure domains: role of timing, pattern and magnitude of exposure on health risks. *Proceedings: Joint WHO-JRC-ECA Workshop on Role of Human Exposure Assessment in Air Quality Management*. Bonn, Germany, EUR 21052. M. Krzyzanowski, J. Jantunen, A. Bartonova, L. Oglesby, S. Kephapoulos, D. Kotzias (Eds). 2004.

NAME: Abdel-Razak M. Kadry

POSITION: Director
Integrated Risk Information System
(IRIS) Program

EXPERTISE: Veterinary Medicine, Toxicology, Risk Assessment

MAJOR ACTIVITIES in NCEA: Abdel serves as the director for the Integrated Risk Information System (IRIS) Program. The IRIS Program coordinates the cross-Agency production of complex, scientific assessments that undergo a series of internal and external reviews prior to being approved for the IRIS data base for public availability. He is responsible for planning, implementing, and overseeing the evolving program and solving complex and policy-sensitive operational problems in the internal and external peer review and Agency review processes.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Field of Study
Cairo University, Faculty of Veterinary Medicine, Egypt	DVM	Veterinary Medicine and Surgery (1975)
Zagazig University, Faculty of Veterinary Medicine, Zagazig, Egypt	M.V. Sc.	Toxicology (1979)
American Board of Toxicology	Ph.D.	Toxicology (1981)
American Veterinary Medical Association	Certification	General Toxicology (1993)
	Certification	National Board of Veterinary Medicine (1996)

SELECTED AWARDS and HONORS:

1. USDA/FSIS Administrator's Award for Excellence (2005)
2. USDA/FSIS Extra Effort Award and Certificate of appreciation for outstanding leadership (2004)
3. Certificate of Merit, for the assistance in the application of the CARVER methodology in the vulnerability assessments of FSIS-regulated products and for the active role in the training of scientists from other agencies and the industry on the methodology (2004)

INVITED LECTURES/SYMPOSIA:

1. Co-Chair, Symposium on Food Safety, 27th meeting of the World Veterinary Congress, September 25-29, Tunisia, 2002
2. Invited Speaker, Integrated Risk Information System (IRIS): Challenges and Opportunities, U.S. Army Center For Health Promotion & Preventive Medicine, Directorate of Toxicology, Aberdeen MD, 2007
3. Co-Chair, Roundtable discussion on Advances in Health Assessment in USEPA's Integrated Risk Information, System (Iris) Program. SOT Annual Meeting, Charlotte, NC, 2007.

RELEVANT PROFESSIONAL ACTIVITIES:

1. Organized and chaired training workshop on Use of Risk assessment in Food safety evaluation, Cairo, Egypt 2005
2. Organized FSIS outreach activities to African and Middle Eastern countries for understanding the Codex Alimentarius, 2005
3. Member, Association for Government Toxicologists Board of Directors, 2007

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles:

Lasky T., Sun W., **Kadry A.**, Hoffman M.K. Mean total arsenic concentrations in chicken 1989-2000 and estimated exposures for consumers of chicken. *Environ Health Perspect.* 112(1):18-21 (2004)

Schroeder C.M., Latimer H.K., Schlosser W.D., Golden N.J., Marks H.M., Coleman M.E., Hogue A.T., Ebel E.D., Quiring N.M., **Kadry A.M.**, Kause J. Overview and summary of the Food Safety and Inspection Service risk assessment for Salmonella enteritidis in shell eggs, October 2005. *Foodborne Pathog Dis.* 3(4):403-12 (2006)

Steinberg E.B., Henderson A., Karpati A., Hoekstra M., Marano N., Souza J.M., Simons M., Kruger K., Giroux J., Rogers H.S., Hoffman M.K., **Kadry A.M.**, Griffin P.M.; Burrito Working Group. Mysterious outbreaks of gastrointestinal illness associated with burritos supplied through school lunch programs. *J Food Prot.* 69(7):1690-8 (2006).

Government Documents.

United States Department of Agriculture, Food Safety and Inspection Service. A Risk Assessment for Clostridium perfringens In Ready-to-Eat and Partially Cooked Meat and Poultry Products, Washington, D.C., 2005

United States Department of Agriculture, Food Safety and Inspection Service. Risk Assessments of Salmonella Enteritidis in Shell Eggs and Salmonella spp. in Egg Products, Washington, D.C., 2005

NAME: Andrew J. R. Gillespie

POSITION: Division Director,
NCEA Cin

EXPERTISE: Leadership; forest measurements; applied statistics.

MAJOR ACTIVITIES in NCEA: Leading a team of scientists who conduct risk assessments of high-visibility chemicals, microbial agents, and ecological threats to human health and the environment. Development of innovative risk assessment methods, tools, and guidelines for use in decision making.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
OPM Federal Senior Executive Service (SES) Candidate Development Program, Washington DC	Certificate	2004	Executive Leadership
Senior Executive Fellow Program, Kennedy School of Government, Harvard University	Certificate	1997	Executive Leadership
	Ph. D	1988	Forest measurements
	M.S.	1985	Forest measurements
SUNY College of Environmental Science and Forestry, Syracuse NY	B.S.	1983	Forest engineering
Humboldt State University, Arcata, California			

RELEVANT PROFESSIONAL EXPERIENCE:

2004-Present: Director, Cincinnati Division, National Center for Environmental Assessment, US Environmental Protection Agency, Cincinnati OH. Leading a team of scientists who conduct risk assessments of high-visibility chemicals, microbial agents, and ecological threats to human health and the environment. Developing innovative risk assessment methods, tools, and guidelines.

1997-2004: Forest Inventory National Program Manager, USDA Forest Service, Washington DC. Built and led a national program to provide timely, consistent, high quality inventory and monitoring data at strategic scales for the nation's forested ecosystems. Wrote and implemented 1998 strategic plan (including budget and staffing plans), led the transition from periodic to continuous inventory system. Developed an annual business reporting system for accountability purposes.

2000 (1 year detail): Congressional Fellow (Professional Staff), U. S. House Subcommittee on Forests and Forest Health (majority staff). Planned and staffed Congressional hearings; advised House staff members on forest resource issues; drafted legislation.

1992-1997: Program Manager, USDA Forest Service, Northeastern Research Station, Radnor PA. Managed forest inventory and forest health monitoring programs for the northeastern US in collaboration with EPA/EMAP program; managed Research Quality Assurance Program.

1990-1992: Research Mathematical Statistician, USDA Forest Service, Institute of Tropical Forestry, Rio Piedras PR. Investigated effects of hurricanes on tropical forest ecology, growth and yield. Provided statistical consultations to other Institute scientists.

SELECTED AWARDS and HONORS

- Selected to the US Federal Senior Executive Service, August 2004
- Award “for outstanding professional support and advice to the Under Secretary for Natural Resources and Environment”, US Department of Agriculture, September 2002

INVITED LECTURES/SYMPOSIA

- “Alternatives for a National Forest Inventory in Argentina” (in Spanish), Presentation to the Government of Argentina, Buenos Aires, Argentina, November 2006
- “One Forest, Three Flags: Forest Inventory across North America”, Society of American Foresters, Edmonton, Canada, October 2004.

RELEVANT PROFESSIONAL ACTIVITIES

- Chair Elect and Chair, Working Group on Forest Inventory, Society of American Foresters, 2004-2006
- Advisor to Government of Argentina on national forest inventory, 1998-2006
- Advisor to Government of Mexico on national and state level forest inventory, 2000-2003
- Advisor to United Nations Food and Agriculture Organization (FAO) on global forest assessment, 2000-2002

NAME: Michel W. Stevens

POSITION: Deputy Director
NCEA-Cin

EXPERTISE: General toxicology, risk assessment, reproductive toxicology

MAJOR ACTIVITIES in NCEA:

Providing technical leadership and managerial support and oversight for health and environmental assessment projects of the Division and Center.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
Vanderbilt University	PhD	1976	Pharmacology
Southeastern La. University	MS	1970	Chemistry
Southeastern La. University	BS	1968	Chemistry
Diplomate – American Board of Toxicology.		1980	

RELEVANT PROFESSIONAL EXPERIENCE:

31 years industrial and governmental service as a toxicologist and health scientist:

2004 – present Deputy Director, NCEA-CINC

1997 - 2004 Branch Chief, Hazardous Pollutant Assessment Branch, NCEA-RTP

1976 – 1997 Toxicologist / Manager Toxicology Projects, Monsanto Company

SELECTED AWARDS and HONORS:

EPA Bronze medal (ORD) – support to program offices

EPA Bronze medal (OPPTS) – support to ATSDR/TSCA test rules

EPA Bronze medal (ORD) – support for Endocrine Disruptors multiyear planning

RELEVANT PROFESSIONAL ACTIVITIES:

Member:

Society of Toxicology

Society for Risk Analysis

American Chemical Society

NAME: Ila Cote

POSITION: Acting Division Director,
NCEA RTP

EXPERTISE: Risk assessment; general, neuro-, and inhalation toxicology

MAJOR ACTIVITIES in NCEA: Manage the NCEA-RTP division (~80 toxicologists, epidemiologists, atmospheric chemists, exposure scientists, computer scientists, librarians, document production staff, and administrative personnel and a budget of ~\$150M). Oversee development of health assessments, including interpretation of the science to address policy-relevant questions. Coordinate closely with the Office of Air and Radiation, Office of General Council, Clear Air Science Advisory Board/Science Advisory Board Staff and the EPA research community.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of New Mexico, Dept. of Psychology, Albuquerque, NM	B.S.	1974	Psychology
University of New Mexico, School of Medicine, Albuquerque, NM	Ph.D.	1978	Physiology
Duke University, School of Medicine, Durham, NC	Post-doc	1978-1979	Physiology and Pharmacology
New York University, School of Medicine, NYC, NY	Post-doc	1979-1980	Environmental Medicine
American Board of Toxicology	D.A.B.T	1983- present	

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2007- present	Acting Division Director	U.S. EPA/ORD/NCEA	RTP, NC
2004-2007	Senior Science Advisor	U.S. EPA/ORD/NCEA	Washington, DC
2002-2003	Senior Toxicologist and Risk Assessor	URS Corporation	Denver, CO
2000-2002	Senior Advisor (pro bono)	Israel Ministry of the Environment and Israel Union for Environmental Defense	Tel Aviv, Israel and Boulder, CO

SELECTED AWARDS and HONORS:

Special Act Awards, 2005, 2006

Exceptional/Outstanding ORD Technical Assistance to the Program Offices, 2006

Letters of Appreciation from Israel Ministry of the Environment and Israel Union for Environmental Defense, 2003

INVITED LECTURES/SYMPOSIA:

Invited Speaker. *U.S. Air Quality Management: Local, Regional and Global Approaches*. International Perspectives on Air Quality: Risk Management Principles for Policy Development Symposium, Cuernavaca, Mexico, January 31–February 1, 2005

Invited Speaker. *Introduction to the Use of Mode of Action and Application to Risk Assessment*, Environmental Mutagen Society Meeting, Vancouver, Canada, September 17, 2006

Invited Speaker. *Emerging Issues and Future Directions in Environmental Health Risk Assessment*. Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, May 9, 2006

Invited Speaker. *Discovery Science: How science knowledge is created at EPA*. Information Discovery Workshop, University of North Carolina/National Science Foundation. Chapel Hill, NC, planned 2008

RELEVANT PROFESSIONAL ACTIVITIES:

Member, Society of Risk Analysis

Organized *Interagency Seminar Series on Expert Elicitation*. Speakers: Douglas Crawford-Brown (UNC), John Evans (Harvard), Neil Stiber (EPA), Harvey Richmond (EPA) and Kathrine Walker (ICF), Warner North (Northworks), Ron Whitfield (Argonne Natl. Lab) Granger Morgan (Carnegie Mellon), Washington, DC, 2005

Organized *U.S. EPA's 2006 Science Forum: Your Health, Your Environment, Your Future*. In cooperation with the Centers for Disease Control and Prevention (CDC), the Agency for Toxic Substances and Disease Research (ATSDR), and the National Institute of Environmental Health Sciences (NIEHS). Speakers included Drs. J. Craig Venter, Rita Colwell, Henry Falk. Washington, DC, 2006

Chaired Organizing Committee and Co-chaired Workshop. *State-of-the-Science Workshop on Low Dose-Response Extrapolation in Human Health Risk Assessment*. Baltimore, MD, 2007

Co-organized Proposed Society of Risk Analysis Special Symposium. *Low dose extrapolation: New approaches to old problem - Session 1: Epidemiology, toxicology and biostatistical challenges; Session 2: Approaches and implications for risk assessment*. San Antonio, TX, 2007

PEER-REVIEWED PUBLICATIONS:

Peer-Reviewed Journal Articles

Cote I.L.; Vandenberg, J.J.; Samet, J. U.S. Air Quality Management: Local, Regional and Global Approaches. *Journal of Toxicology and Environmental Health*, accepted for publication.

Preuss, P.W.; Vandenberg, J.J.; Tuxen, L.; **Cote, I.L.** Risk assessment at the US EPA: the science behind the assessments. *Hum. Ecol. Risk Assess.* 13: 41-45, 2007.

Agency Documents

U.S.EPA Cancer Risk Assessment of Organic Arsenical Herbicides: Comments on Mode of Action, Human Relevance and Implications for Quantitative Dose-response 060Assessment, Final Draft, July 27, 2005, *Federal Register*. October 24, 2006, Volume 71, Number 205, Page 62257-62258.

U.S. EPA Issue Paper: Inorganic Arsenic Cancer Slope Factor, Final Draft, July 22, 2005, http://www.epa.gov/waterscience/sab/ASIssues_SAB.pdf

Other Government Document

Israeli Ministry of Environment, Israel Union for Environmental Defense (Adam Teva V'Din), Tel Aviv Municipality, Ashdod-Havel-Yavene Regional Association of Towns for Environmental Protection, and U.S. Environmental Protection Agency. A comparative assessment of air pollution public health risks in two Israeli metropolitan areas, January 2003.

NAME: David A. Bussard

POSITION: Division Director,
NCEA Wa

EXPERTISE: Manager, member of Senior Executive Service.

MAJOR ACTIVITIES in NCEA: Managing Division which does many major chemical assessments (e.g., TCE and asbestos), many of the risk assessment methods projects, exposure factors and other exposure guidance.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Federal Executive Institute	certificate	2006	Leadership for a Democratic Society
Kennedy School of Government, Harvard University	MPP	1981	Public Policy
Harvard College	BA	1976	Biochemistry

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2001– Present	Division Director	EPA/ORD/NCEA/Wash Div	Washington, DC
1990 – 2001	Division Director	EPA/OSWER/OSW/Hazardous Waste Identification Division	Washington, DC
1988 – 1990	Division Director	EPA/OSWER/OSW/Hazardous Waste Management Division	Washington, DC
1987 – 1988	Deputy Div. Director	EPA/OSWER/OSW/Hazardous Waste Management Division	Washington, DC
1985 – 1988	Special Assistant to Office Director	EPA/OSWER/OSW	Washington, DC
1984 – 1985	Project Manager	EPA/OPPT/OTS	Washington, DC
1981 – 1984	Program Analyst	EPA/ Office of Policy, Planning and Evaluation	Washington, DC
1977 – 1979	Research Assistant	Harvard University Faculty Project on Regulation	Cambridge, MA

SELECTED AWARDS and HONORS:

Selected to the US Federal Senior Executive Service (1991), promoted within SES three times.

EPA Gold medal for leading US delegation that developed an OECD treaty agreement on transboundary movements of waste.

Agency performance awards almost every year.

INVITED LECTURES/SYMPOSIA:

December 11, 2007 "Practical considerations on uncertainty analysis from a regulatory agency's perspective."

January 30, 2007. "How EPA Handles 'Uncertainty' in the Draft IRIS Support Document for PERC". The Toxicology Forum. Winter Meeting. Washington, DC.

July 13, 2006. "EPA TCE Cancer Assessment". The Toxicology Forum. Summer Meeting. Aspen, CO

NAME: Charles Ris

POSITION Deputy Division Director
NCEA Wa

EXPERTISE:

Hazard identification and general risk assessment
Risk communications
Diesel engine emissions

MAJOR ACTIVITIES in NCEA:

Deputy to Division Director NCEA Washington
Management direction and science oversight
Chemical manager for diesel exhaust emissions

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Georgia Tech	BCE	1964	Civil Engineering
	MSSE	1965	Sanitary Engineering

RELEVANT PROFESSIONAL EXPERIENCE:

Georgia Dept of Environmental Protection 1965-1966
US Public Health Service 1966-1969
US EPA: 1970 - present

SELECTED AWARDS and HONORS:

Agency Silver medal for US EPA Diesel Engine Health Assessment

INVITED LECTURES/SYMPOSIA:

2006 Inhalation Toxicology Conference –INES; Fraunhofer-Institut für Toxikologie und Experimentelle Medizin ITEM, Hannover, Germany.

PEER –REVIEWED PUBLICATIONS

Peer Review Journal Articles

Ris, C. H.; U.S. EPA Health Assessment for Diesel Engine Exhaust: A Review. Publication of 2006 INES Proceedings; Journal Inhalation Toxicology, In Press-2007 (Agent: Fraunhofer-Institut für Toxikologie und Experimentelle Medizin ITEM, Hannover, Germany.

Agency Documents (including final Assessments), e.g.

U.S. EPA Health Assessment for Diesel Engine Exhaust, 2002

Long-Term Goal 1

Presenters

Long Term Goal 1

Session Coordinator

Karen Hammerstrom

Presenters

NAME: Robert DeWoskin

POSITION: Toxicologist

EXPERTISE: Qualitative and quantitative hazard assessment; development and use of biologically-based models (e.g., PBPK models) in risk assessment

MAJOR ACTIVITIES in NCEA The development, evaluation, and use of biological models (primarily PBPK models) in risk assessment. Co-chair of NCEA's pharmacokinetic workgroup (PKWG); the PKWG provides technical consult to Chemical Managers (CM) on the use of PBPK model in their assessments. Chemical Manager for the Ethanol and Acrylamide IRIS assessments.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
North Carolina State University; Raleigh, NC	PhD	1991	Toxicology
Oregon State University; Corvallis, OR	MS	1978	Zoology (minor in Statistics)
University of Colorado; Boulder, CO	BA	1970	Environmental Biology
Society for Quality Control	CQE ¹	1986	Quality Control/Quality Assurance
American Board of Toxicology	DABT ²	1997	Toxicology

¹ Certified Quality Engineer (CQE is active 1986 – present)

Diplomate of the American Board of Toxicology (DABT is active 1997 – present)

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2001 – Present	Toxicologist	EPA/ORD/NCEA	RTP, NC
1998 – 2001	Postdoctoral Position	EPA/ORD/NHEERL	RTP, NC
1991-1998	Director, Regulatory Toxicology Program	Research Triangle Institute	RTP, NC

SELECTED AWARDS and HONORS:

EPA S Award (2006) - Sustained superior effort developing the Acrylamide IRIS Assessment.

EPA Bronze Award (2006) – Member of team that produced the EPA report, Approaches for the Application of PBPK Models and Supporting Data in Risk Assessment.

EPA S Award (2005) - Sustained superior effort in advancing the use of kinetic models in Agency risk assessments.

EPA Bronze Award (2004) – Technical consult for the PBPK model route-to-route extrapolation in support of the TSCA Section 4 Enforceable Consent Agreement (ECA) for Ethylene Dichloride.

INVITED LECTURES/SYMPOSIA:

Invited workshop participant (and session rapporteur) for an International Workshop on Good Practice for Physiology Based Pharmacokinetic (PBPK) Modeling. 2007. Crete, Greece.

Workshop participant (and session rapporteur) for an International Workshop on Uncertainty and Variability in Physiologically Based Pharmacokinetic (PBPK) Models. 2006. Research Triangle Park, North Carolina.

Co-chaired a Society of Toxicology Workshop – “Towards the Virtual Human: Adding More Physiological Detail to Biologically Based Models Used in Risk Assessment”. Presented the lead talk on “Current Status and Challenges in the Use of Physiology Models in Risk Assessment”. 2006. San Diego, CA

Invited presentation – “Current Status and Challenges in the Use of Physiology Models in Risk Assessment” at a US Army Corps of Engineers workshop to develop *in silico* biomimetic toxicity sensors for rapid testing of water resources. 2006. MIT, Boston, MA.

Invited presentation - “Reference Values in the Acrylamide IRIS Assessment Developed by the US EPA” at a Society of Toxicology Symposium on Dietary Acrylamide - New or Ancient Risk. 2005. New Orleans, LA.

RELEVANT PROFESSIONAL ACTIVITIES:

Society of Toxicology (Biological Modeling Specialty Section)

Society for Risk Analysis (past councilor NC/RTP chapter)

Society of Quality Assurance (life-time emeritus member)

Adjunct Associate Professor - North Carolina State University (since 2005)

Managing Editor - Quality Assurance: Good Practice, Regulation, and Law (1997-2000)

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles:

Barton HA, Chiu WA, Setzer RW, Andersen ME, Bailer AJ, Bois FY, **DeWoskin RS**, Hays S, Johanson G, Jones N, Loizou G, Macphail RC, Portier CJ, Spendiff M, Tan YM. Characterizing Uncertainty and Variability in Physiologically-based Pharmacokinetic (PBPK) Models: State of the Science and Needs for Research and Implementation. *Toxicol Sci.* [May 4; Epub ahead of print] (2007).

DeWoskin RS. PBPK Models in Risk Assessment – A Focus on Chloroprene. *Chemical-Biological Interactions.* 166(1-3):352-9 (2007).

Chiu WA, Barton HA, **DeWoskin RS** et al. Evaluation of physiologically based pharmacokinetic models for use in risk assessment. *J Appl Toxicol.* 27(3):218-37 (2007).

DeWoskin RS. Information resources on quality available on the internet. *Quality Assurance* 10(1):29-65 (2003).

DeWoskin RS, Barone Jr S, Clewell HJ and RW Setzer. Improving the development and use of biologically based dose response models (BBDR) in risk assessment. *Human and Ecological Risk Assessment* 7(5):1091-1120 (2001).

Book/Book Chapters:

DeWoskin RS, Lipscomb J, Thompson C et al. Pharmacokinetic/Physiologically Based Pharmacokinetic Models in Integrated Risk Information System Assessments. In *Toxicokinetics and Risk Assessment*. Lipscomb, JC and Ohanian EV (editors). Taylor & Francis. Chapter 15 (2006). Pp. 301-348.

Agency Documents (including final Assessments):

Barton H, Weihsueh C, **DeWoskin RS**, Foureman G, Krishnan K, Lipscomb J, Schlosser P, Sonawane B, Thompson C. Approaches for the Application of Physiologically-Based Pharmacokinetic Data and Models in Risk Assessment. EPA/600/R-05/043F. Available at: <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=157668> (2006).

DeWoskin RS (EPA Chemical Manager). IRIS Toxicological Review and Summary Documents for Acrylamide. Interagency Review Draft. (2007).

DeWoskin RS (EPA Chemical Manager). IRIS Toxicological Review and Summary Documents for Ethanol. Internal Review Draft. (2007).

NAME: Lynn Flowers

POSITION: Special Assist to the Assoc. Dir. for)
Health (Detail

EXPERTISE: Mode of action of chemical carcinogenesis and its use in regulatory toxicology; toxicology and health assessment of polycyclic aromatic hydrocarbons; and health assessment of nongenotoxic carcinogens

MAJOR ACTIVITIES in NCEA: Team leader of the Toxic Effects Characterization Team in the IRIS Program. Chemical manager for toluene, xylenes, acetone, naphthalene and PAH mixtures IRIS assessments. Co-author of *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*. EPA representative to the WHO-IPCS Executive Board for the development of Concise International Chemical Assessment Documents (CICADs).

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
West Virginia University, Morgantown, WV	BS	1983	Chemistry
West Virginia University, Morgantown, WV	PhD	1987	Medicinal Chemistry
Certified as a Diplomate of the American Board of Toxicology	DABT	(1998; recertified 2003)	

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
Feb 2007 - present	Special Assistant to the Assoc. Dir. Health (Detail)	EPA/ORD/NCEA	Washington, DC
2004 - 2007	Leader of the Toxic Effects Characterization Team IRIS Program	EPA/ORD/NCEA	Washington, DC
2000 - 2004	Senior Biologist	EPA/ORD/NCEA	Washington, DC
1997 - 2000	Pharmacologist	EPA/Region III/Superfund	Philadelphia, PA
1989 - 1997	Postdoctoral Fellow and Research Associate	University of Pennsylvania	Philadelphia, PA
1987 - 1989	National Research Council Postdoctoral Fellow	NIOSH/Div. Resp. Disease Studies	Morgantown, WV

SELECTED AWARDS and HONORS:

EPA Silver medal for Superior Service (2006) for outstanding contribution to the development of the Agency's revised *Guidelines for Carcinogen Risk Assessment* and the companion *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*

INVITED LECTURES/SYMPOSIA:

Recent Innovations in IRIS Health Assessments, Joint Meeting of the Environmental Health Committee and the Integrated Human Exposure Committee, USEPA Science Advisory Board (September 2006)

The Carcinogenicity of Naphthalene, Technical Seminar Series, US Army Center for Health Promotion and Preventive Medicine, Aberdeen Proving Ground, MD (March 2006)

Implications of the Cancer Guidelines for Evaluating Chemicals, OPP/HED Training and Certification Program, Washington, DC (June 2005)

Current and Future Directions in Risk Assessment and Toxicology for Protecting Human Health, Air and Waste Management Association, West Virginia Chapter, Charleston, WV (September 2004)

Environmental Regulatory Risk Assessment, Regulatory Risk Assessment Course, School of Public Health, George Washington University, Washington, DC (2002-2004)

RELEVANT PROFESSIONAL ACTIVITIES:

Member, Society of Toxicology (2002-present)

Member, International Society of Polycyclic Aromatic Compounds (2001-present)

Councilor, National Capitol Area Chapter Society of Toxicology (2004-present)

Editorial Reviewer, Polycyclic Aromatic Compounds (2006-present)

Coordinator and co-chair, Roundtable Session, Advances in Health Assessment in USEPA's IRIS Program, Society of Toxicology (2007)

Final Review Board (FRB) Member for the development of Concise International Chemical Assessment Documents (CICADs), WHO International Programme on Chemical Safety (2004-present)

Monograph Working Group, Volume 92: Some non-heterocyclic polycyclic aromatic hydrocarbons and some related industrial exposures, International Agency for Research on Cancer, Lyon, France (June 2005-present)

USEPA Risk Assessment Forum Steering Committee for Harmonization of Human Health Risk Assessment (2002-2005)

USEPA Risk Assessment Forum Technical Writing Panel for the Supplemental Guidance for Assessing Cancer Susceptibility From Early-Life Exposure to Carcinogens (2002-2005)

Session Chair, Chemical-Specific Health Assessments, PAH Mixtures: Assessment of Human Health Risks, Annual Regional Risk Assessors Conference, Philadelphia, PA (2002)

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles

Barton, H., Coglianò, V.J., **Flowers, L.**, Valcovic, L., Setzer, R.W. and Woodruff, T. Assessing susceptibility from early-life exposure to carcinogens. *Env. Health Perspect.* **113**, 1125-1133 (2004).

Flowers, L., Rieth, S.H., Foureman, G.L., Hertzberg, R., Nesnow, S., Murphy, D.L., Coglianò, V.J., Schoeny, R.S. and Hofmann, E.L. Health assessment of polycyclic aromatic hydrocarbon mixtures: Current practices and future directions. *Polycyclic Aromatic Compounds* **22**, 811-821 (2002)

Agency Documents

U.S. Environmental Protection Agency. Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens. EPA/630/R-03/003F. ORD/RAF, Washington, DC (2005)

U.S. Environmental Protection Agency. IRIS Toxicological Review and Summary of Toluene. EPA/635/R-05/004. ORD/NCEA, Washington, DC (2005)

U.S. Environmental Protection Agency. IRIS Toxicological Review and Summary of Naphthalene (external review draft). NCEA-S-1707. ORD/NCEA, Washington, DC (2004)

U.S. Environmental Protection Agency. IRIS Toxicological Review and Summary of Acetone. EPA/635/R-03/004. ORD/NCEA, Washington, DC (2003)

U.S. Environmental Protection Agency. IRIS Toxicological Review and Summary of Xylenes. EPA/635/R-03/001. ORD/NCEA, Washington, DC (2003)

NAME: Gary L Foureman,

POSITION: Supervisory Toxicologist

EXPERTISE: General Toxicology, Dosimetry, Dose-Response

MAJOR ACTIVITIES in NCEA: Chief, Hazardous Pollutants Assessment Group (HPAG) with overall responsibility and oversight for scientific products including IRIS chronic and acute health effect assessments, development of acute inhalation methodology, revision of chronic inhalation methodology and development and expansion of dose-response methodologies. Scientific manager for projects related to acute and chronic dosimetry, and acute data base. Risk Assessment Forum committee member for products related to risk assessment harmonization.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Miami University, Oxford , Ohio	BS Ed	1970	Education
North Carolina State University, Raleigh, NC	PhD	1982	Toxicology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2005– Present	Supervisory Toxicologist	EPA/ORD/NCEA	Research Triangle Park, NC
2002– 2005	Senior Health Scientist	EPA/ORD/NCEA	Research Triangle Park, NC
1990 – 2002	Health Scientist	EPA/ORD/NCEA	Research Triangle Park, NC
1989 – 1990	Toxicologist	EPA/OPPT	Washington, DC
1987 – 1989	Senior Staff Toxicologist	NIEHS	Research Triangle Park, NC
1986 – 1983	Research Assist. Prof	Oregon State Un., Dept Biochemistry & Biophysics	Corvallis, OR
1972 - 1983	Biologist	NIEHS	Research Triangle Park, NC

SELECTED AWARDS and HONORS:

NCEA “S” Awards (2), 2005 and 2006

ORD-wide Bronze Award, 2003, as Co-Author on Risk Assessment Forum Report on the “RfD/RfC Process”

Risk Assessment Specialty Section of the Society of Toxicology award *for one of Best Papers presented at the Society of Toxicology*, 1999.

NCEA/ORD Peer Review Award for Scientific Achievement, 1999.

INVITED LECTURES/SYMPOSIA:

Invited Speaker: *Hazard Identification*", presented as part of a Continuing Education Course on Fundamentals of Human Health Risk Assessment with a Case Study at the Society of Toxicology National Meeting in Charlotte, NC, March 25, 2007.

Co-Chair, Toxicology and Risk Assessment Conference, "*Applying Mode of Action to Risk Assessment*" Cincinnati, Ohio, April 24-27, 2006.

Co-Chair Plenary Session: *Approaches and Advances of Mode-of-Action Information to Risk Assessment Processes*, Toxicology and Risk Assessment Conference, Cincinnati, Ohio, April 24-27, 2006.

Invited Speaker: *Determination of Adverse Effect in Toxicological Risk Assessment, including Differences Among Agency Practices*", presented as part of a Continuing Education Course on Adverse Effects at the Society of Risk Analysis National Meeting in Baltimore, MD, December 3, 2006.

Moderator/Organizer for Roundtable Discussion "*The Benchmark Dose and Risk Assessment - 20 Years Later*". SRA National Meeting, Palm Springs, CA, December, 2004.

RELEVANT PROFESSIONAL ACTIVITIES:

Society of Toxicology (SOT), Full Member (1993)

Society for Risk Analysis (SRA), Full Member (1996)

President, Dose-Response Specialty Group, SRA (2004)

Trustee, Dose-Response Specialty Group, SRA (2006-8)

PEER –REVIEWED PUBLICATIONS

Peer Reviewed Journal Articles

Whalen, J.E., **Foureman, G.L.** and Vandenberg, J.J. 2006. Inhalation Risk Assessment at the Environmental Protection Agency in *Inhalation Toxicology, 2nd Ed (Salem, H. and Katz S.A., eds)* CRC-Taylor and Francis.

Kenneth G. Brown, K.G. and **Foureman, G.L.** 2005. An Empirical Approach to Dose-Duration Response Modeling and Time-Scaling. *Regul Toxicol Pharmacol.* (1):45-54.

Thall, K.D., Schwartz, R.E., Weitz, K.K., Soelberg, J.J., **Foureman, G.L.**, Prah, J.D., and Timchalk, C. 2003. A real-time method to evaluate the nasal deposition and clearance of acetone in the human volunteer *Inhal. Toxicol.* 15: 523-538.

Matsumoto A., Kunugita N., Kitagawa K., Isse T., Oyama T., **Foureman G. L.**, Morita M., Kawamoto T. 2002. Bisphenol A levels in human urine. *Env Health Persp* 111 (1): 101-104.

Strickland J.A., **Foureman G.L.** 2002. US EPA's acute reference exposure methodology for acute inhalation exposures. *Sci Total Environ.* 288(1-2): 51-63.

Agency Documents

Contributing Author, Preliminary Methodology for Assessment of Health Effects from Acute Inhalation Exposures, Interagency Review Draft, EPA 600/R-05/112 (August 2006).

Panel Member and Principal Author, Harmonization in Interspecies Extrapolation: Use of BW^{3/4} as Default Method in Derivation of the oral RfD. Risk Assessment Harmonization Science Policy Paper #1, A Risk Assessment Forum Document (Externally reviewed 2006).

Principal Author, IRIS Chronic assessment of Hydrogen sulfide (CASRN 7783-06-4), online IRIS, 2003.

Panel Member and Contributing Author, A Review of the Reference Dose and Reference Concentration Processes, a Risk Assessment Forum document, EPA/630/R-02/001, May 2002.

Chapter Author on *“Dosimetry of Diesel Particulate Matter”* in Health Assessment Document for Diesel Emissions, EPA/600/8-90/057C, January, 2001.

Chapter Author on *“Quantitative Approaches to Estimating Human Noncancer Health Risks of Diesel Exhaust”*, in Health Assessment Document for Diesel Emissions, EPA/600/8-90/057C, January, 2001.

NAME: Jeffrey S. Gift

POSITION Senior Health Scientist:

EXPERTISE: Risk assessment, dose-response modeling

MAJOR ACTIVITIES in NCEA: Served as the chemical manager for major Agency health assessments. Currently the chemical manager for development of risk assessments for phosgene and methanol. Develop and implement dose-response models for the Agency's benchmark dose website (www.epa.gov/ncea/bmds.htm). Develop and teach benchmark dose-response training courses and manage a support staff of contract and EPA statisticians and programmers for the development of EPA dose-response software, including EPA's benchmark dose (BMDs) and categorical regression (CatReg) software.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
The American University, Washington, DC	Ph.D.	1987	Chemistry
The College of William and Mary, Williamsburg, VA	B.S.	1979	Chemistry

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2004-Present	Sr. Health Scientist	EPA/ORD/NCEA	RTP, NC
1999-2004	Director Support Scientist Officer	EPA/ORD/NCEA	RTP, NC
1990-1999	Senior Research Scientist Officer	EPA/ORD/ECAO	RTP, NC
1988-1990	Toxicologist	ATSDR/DOT	Atlanta, GA
1986-1988	Toxicologist Consultant	Env. Monitoring and Services	Washington, DC
1984-1986	Chemical Information Specialist	FDA	Rockville, MD
1982-1984	Chemical Information Specialist	Computer Sciences	Falls Church, VA
1979-1982	Hazardous Pollutant Response Officer	Corp. U.S. Coast Guard	Washington, DC

SELECTED AWARDS and HONORS:

2007 - "S" Award for work on 2-butoxyethanol (EBE) IRIS health assessment

2005 - "S" Award for contributions in dose-response area, including Benchmark Dose (BMD) and CatReg

2005 - Bronze Medal from Program Office (OAQPS) for support in evaluation of EBE delisting petition

INVITED LECTURES/SYMPOSIA :

2007 - Proposed co-chair for 2 symposia and a workshop on benchmark dose modeling; SRA conference

2007 - Invited instructor for categorical regression workshop; Toxicology & Risk Assessment Conference

2006 - Invited instructor for dose-response modeling workshop; Toxicology & Risk Assessment Conference

2005 - Invited instructor for benchmark dose training workshop; SRA conference

2005 – Invited instructor for BMD training at EPA/NCEA, Cincinnati, OH; received Certificate of Appreciation

RELEVANT PROFESSIONAL ACTIVITIES:

Member, Society for Risk Analysis

Deployable member, (2003-4) Commissioned Corp Readiness Force

Member, (1988-2004) U.S. Public Health Service Commissioned Officers Association

Organizer and Chair, (2002) Dose-Response Modeling Workshop, RTP, NC

PEER –REVIEWED PUBLICATIONS

Peer Review Journal Articles

Caldwell J.C., Jinot J, DeVoney D., Gift J.S. Evaluation of Evidence for Infection as a Mode of Action for Induction of Rat Lymphoma. *Environmental and Molecular Mutagenesis* (submitted, 5/2007)

Gift J.S., McGaughy R., Singh, D.V., Sonawane, B. Health Assessment of Phosgene: Approaches for Derivation of Reference Concentration. *Reg Toxicology and Pharm* (2007; *in press*).

Gift J.S. US EPA's IRIS assessment of 2-butoxyethanol: The relationship of noncancer to cancer effects. *Tox. Letters* **156**, 163-178 (2005).

Zhu Y., Jia Z., Wang W., Gift J.S., Moser, V.C., and Pierre-Louis, B.J. (2005) Analyses of Neurobehavioral Screening Data: Benchmark Dose Estimation. *Reg Toxicology and Pharm* **42**, 190-201 (2005)

Agency Documents

U.S. EPA (2006) Toxicological review of Phosgene (CASRN 75-44-5). Cincinnati, OH: National Center for Environmental Assessment, Integrated Risk Information System (IRIS). Available online at: <http://www.epa.gov/iris/toxreviews/0487-tr.pdf>.

U.S. EPA. (2004) An evaluation of the human carcinogenic potential of ethylene glycol butyl ether, Interim Final Report. National Center for Environmental Assessment, Office of Research and Development, September, 2004. EPA 600/R-04/123.

U.S. EPA (2004) Toxicological review of 1,2-Dibromoethane (CASRN 106-93-4). Cincinnati, OH: National Center for Environmental Assessment, Integrated Risk Information System (IRIS). Available online at: <http://www.epa.gov/iris/toxreviews/0361-tr.pdf>.

NAME: Karen Hogan

POSITION: Statistician

EXPERTISE Statistical analysis of toxicologic and epidemiologic data, dose-response modeling, PBPK model validation

MAJOR ACTIVITIES in NCEA Senior Statistician in IRIS Program, co-chair of NCEA Statistical Workgroup: Provide dose-response modeling and general statistical support for specific IRIS assessments, coordinate or provide internal review of quantitative aspects other IRIS assessments; Chair of technical panel preparing Benchmark Dose Technical Guidance

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Georgetown University	MS	1983	Biostatistics and Epidemiology
Dickinson College	BS	1976	Chemistry

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
1987 – Present	Statistician	EPA/ORD/NCEA	Washington, DC
1983 – 1987	Statistician	Gillette Medical Evaluation Laboratories	Rockville, MD

SELECTED AWARDS and HONORS

2004 Scientific and Technological Achievement Level I Award (EPA)

RELEVANT PROFESSIONAL ACTIVITIES

Member, Society for Risk Analysis (2005 – present)

PEER –REVIEWED PUBLICATIONS

Peer Reviewed Journal Articles

Chiu WA, Chen C, **Hogan K**, Lipscomb JC, Siegel Scott C, Subramaniam R (2007). High-to-Low Dose Extrapolation: Issues and Approaches. Human and Ecological Risk Assessment, 13:46-51.

Harrouk WA, Wheeler KE, Kimmel GL, **Hogan KA**, Kimmel CA (2005). Effects of hyperthermia and boric acid on skeletal development in rat embryos. Birth Defects Research Part B: Developmental and Reproductive Toxicology 2005 Jun;74(3):268-76.

Selevan SG, Rice DC, **Hogan KA**, Euling SY, Pfahles-Hutchens A, Bethel J (2003). Blood Lead Concentration and Delayed Puberty in Girls. New England Journal of Medicine, 348:1527-1536, April 17, 2003.

Agency Documents (contributor)

U.S. Environmental Protection Agency. Toxicological Review for 1,2-Dibromoethane. EPA 635/R-04/067 ORD/NCEA, Washington, DC (2004).

U.S. Environmental Protection Agency. Toxicological Review for Methyl Ethyl Ketone. EPA 635/R-03/009 ORD/NCEA, Washington, DC (2003).

NAME: Samantha Jones

POSITION: Toxicologist

EXPERTISE: General toxicology

MAJOR ACTIVITIES in NCEA: Chemical manager for the pentachlorophenol and hexachloroethane assessments. Serves as the IRIS staff lead for the four polybrominated diphenyl ether assessments. Serve as the lead for the ATSDR-NCEA Memorandum of Understanding and Screening-Level Literature Review projects.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
North Carolina State University, Depart of Environ. and Molecular Toxicology, Raleigh, NC	PhD	2003	Toxicology (with Environmental concentration)
Campbell University, Buies Creek, NC	BS	1998	Chemistry and Biology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2004 – Present	Toxicologist	EPA/ORD/NCEA-IO/IRIS	Washington, DC
2003 – 2004	Toxicologist	Versar, Inc.	Springfield, VA

SELECTED AWARDS and HONORS:

EPA Performance award. 2005, 2006, 2007

EPA On-the-Spot award, 2006 (Served as co-Facilitator for two IRIS Brainstorming Sessions)

EPA Time-off award, 2007 (Coordination with ATSDR and Memorandum of Understanding)

RELEVANT PROFESSIONAL ACTIVITIES:

Member, Society of Toxicology (2005-2007)

Member, Society for Risk Analysis (2005-2007)

Member, Association of Government Toxicologists (2006-2007)

PEER-REVIEWED PUBLICATIONS:

Jones, S. and Kim, J. 2007. An Evaluation of the Mode of Action Information for Hexachloroethane using US EPA's 2005 Guidelines for Carcinogen Risk Assessment, Poster Presentation, Society of Toxicology Annual Conference, Charlotte, NC, 2007

Jones, S. et al., 2006. Integrated Risk Information System Screening-Level Review of Chemical Substances, Poster Presentation, Society for Risk Analysis Annual Conference, Baltimore, MD, 2006

Jones, S. et al., 2006. Inter-Agency Coordination on the Development of Health Assessments. Poster Presentation, US EPA Science Forum, Washington, DC, 2006

Jones, S. et al., 2005. Inter-Agency Coordination on the Development of Health Assessments. Poster Presentation, US EPA Science Forum, Washington, DC, 2005

NAME: Channa Keshava

POSITION: Environmental Health Scientist

EXPERTISE: Genetic Toxicology, Toxicogenomics, Molecular Carcinogenesis

MAJOR ACTIVITIES in NCEA: Lead, Genetic Toxicology Section by providing text, reviewing, and revising Integrated Risk Information System (IRIS) health assessment documents (e.g.: acrylamide, benzo[a]pyrene, naphthalene, nitrobenzene, trichloropropane, pentachlorophenol, acrylonitrile, trichloroacetic acid, carbon tetrachloride, ethyl tertiary butyl ether and hexachloroethane).

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
West Virginia University, Morgantown, WV	Ph.D.	1995	Genetic and Molecular Toxicology
University of Agricultural Sciences, Bangalore, India	M.S.	1991	Animal Sciences (Toxicology)
University of Agricultural Sciences, Bangalore, India	B.S.	1989	Genetics (Major)

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2004 – Present	Environmental Health Scientist	EPA/ORD/NCEA/IRIS	Washington, DC
2001 – 2004	Service Fellow	National Institute for Occupational Safety and Health (NIOSH/CDC)	Morgantown, WV
1998-2001	NRC Fellow	NIOSH/CDC	Morgantown, WV
1995 - 1997	Postdoctoral Fellow	Emory University School of Medicine	Atlanta, GA

SELECTED AWARDS and HONORS :

- Superior Performance Award, NCEA/IRIS, EPA, 2005-2006
- Certificate of Appreciation for Production of PPRTV Issue Papers, EPA 2005-2006
- Superior Performance Award, NCEA/IRIS, EPA, 2004-2005

INVITED LECTURES/SYMPOSIA:

- Invited speaker at the Environmental Mutagen Society, 37th Annual Meeting, Vancouver, British Columbia, Canada. Use of genotoxicity data in risk assessment. Risk Assessment Specialty Section, September 16-20, 2006.
- Invited speaker at the Environmental Mutagen Society, 37th Annual Meeting, Vancouver, British Columbia, Canada. Transcriptional signatures and potential

biomarkers of asphalt fume exposure in rat epithelial cells using DNA microarrays. September 16-20, 2006.

- Invited presentation at the Society for Risk Analysis, 25th Annual meeting, Orlando, FL. An evaluation of the mutagenicity of coke oven emissions using US EPA's 2005 supplemental guidance for assessing cancer susceptibility from early-life exposure to carcinogens. December 4-7, 2005.
- Invited speaker at the Oregon State University, Departments of Environmental and Molecular Toxicology and Biochemistry and Biophysics, Corvallis, OR. Expression profile of primary normal human mammary epithelial cells in response to benzo[a]pyrene exposure using microarrays. May 10, 2003.
- Invited speaker at the AVI Biopharma, Corvallis, OR. Altered gene expression patterns in response to CYP3A2 antisense in tamoxifen treated rats using oligonucleotide microarrays. May 11, 2003.

RELEVANT PROFESSIONAL ACTIVITIES

- Chair, Membership Committee, Assoc. of Government Toxicologists (2006 - 2007)
- Reviewer, Carcinogenesis, Mutation Research and Environmental and Molecular Mutagenesis Journals
- Collaborations with various agencies: National Institute of Health/National Cancer Center (NIH/NCI) (1998 – present); Oregon State University (1999 – present); Penn State College of Medicine (2004 – present); Centers for Disease Control and Prevention/ National Institute for Occupational Safety and Health (CDC/NIOSH) (2004 – present); Chiba University, Japan (2005 – present); Central Queensland University (2006 – present).
- Member, Environmental Mutagen Society, USA (1993 - present)
- Member, American Association for Cancer Research, USA (1997 - present)
- Member, Association of Government Toxicologists, USA (2004 - present)
- Member, Genetic Toxicology Association, USA (2006 - present)
- Member, Federation of American Societies of Experimental Biology (FASEB), (2005 - present)
- Member, Society for Risk Analysis (2005 - present)
- Member, International Symposium on Polycyclic Aromatic Compounds, USA (2001–2003)
- Member, Risk Assessment Forum Technical Panel on the Mutagenic Mode of Action (2004 – present).
- Member, Technical panel, Agency-wide Workgroup on Toxicogenomics, Science Policy Council to develop an Interim Guidance Document for Microarray-Based Assays (2004 – present).
- Member, Toxicogenomics workgroup on “Use of Toxicogenomics Data in Risk Assessment: Case Study for a Chemical in the Androgen-Mediated Male Reproductive Development Toxicity Pathway”. I provide advice and assist in the development of the case study for incorporation of toxicogenomics information into risk assessment (2005 – present).

PEER –REVIEWED PUBLICATIONS

Peer Review Journal Articles, e.g.

Keshava, C., R.L. Divi, N. Keshava, D.L. Whipkey, S.L. Leonard, M.C. Poirier, A. Weston: Chlorophyllin significantly reduces benzo[a]pyrene-induced expression of cytochrome P450 1A1 and 1B1, signal transduction genes and B(a)P-DNA adduct formation in human mammary epithelial cells: (Submitted: Molecular Carcinogenesis, 2007).

Mahadevan, B., V. Arora, L.J. Schild, **C. Keshava**, M.L. Cate, P.L. Iversen, M.C. Poirier, Weston, C. Pereira and W.M. Baird.: Reduction in tamoxifen-induced CYP3A2 expression and DNA adducts using antisense technology. Molecular Carcinogenesis, 45:118-125, 2006.

Gwinn, M.R., **C. Keshava**, O.A. Olivero, J. A. Humsi, M.C. Poirier and A. Weston.: Transcriptional signatures of normal human mammary epithelial cells in response to benzo[a]pyrene exposure: A comparison of three microarray platforms. OMICS A Journal of Integrative Biology, 9: 334-350, 2005.

Hooven, LA., B. Mahadevan, **C. Keshava**, C. Johns, C. Pereira, D. Desai, S. Amin, A. Weston and W.M. Baird: Effects of suberoylanilide hydroxamic acid and trichostatin A on induction of cytochrome P450 enzymes and benzo[a]pyrene DNA adduct formation in human cells. Bioorganic & Medicinal Chemistry Letters, 15: 1283–1287, 2005.

Mahadevan, B*, **C. Keshava***, T. Musafia, A. Pecaj, A. Weston and W.M. Baird: Altered gene expression patterns in MCF-7 cells induced by the urban dust particulate complex mixture SRM 1649a. Cancer Research, 65 (4): 1251-1258, 2005.

Keshava, C., R.L. Divi, D.L. Whipkey, E. McCanlies, B.L. Frye, M. Kuo M.C. Poirier, A. Weston: Induction of *CYP1A1* and *CYP1B1* and formation of carcinogen-DNA adducts in normal human mammary epithelial cells treated with benzo[a]pyrene. Cancer Letters, 221 (2): 213–224, 2005.

Keshava, C., D.L. Whipkey and A. Weston: Transcriptional signatures of environmentally relevant exposures in normal human mammary epithelial cells: Benzo[a]pyrene. Cancer Letters, 221 (2): 201–211, 2005.

Keshava, C., E. McCanlies and A. Weston (2004): CYP3A4 polymorphisms: Potential risk factors in breast and prostate cancers. Am. J. Epidemiol., 160:1825-841, 2004.

Weston, A., J. Ensey, K. Kreiss, **C. Keshava** and E. McCanlies.: Racial Differences in Prevalence of a supratypic HLA-marker immaterial to pre-employment testing for chronic beryllium disease. Am. J. Ind. Med., 41:457-465, 2002.

Keshava, C., B.L. Frye, M.S. Wolff, E. McCanlies and A. Weston.: *WAF-1 (p21)* and *p53* polymorphisms in breast cancer. Cancer Epidemiol. Biomark. and Prev., 11: 127-130, 2002.

NAME: Amanda S. Persad

POSITION: Epidemiologist

EXPERTISE: Epidemiology

MAJOR ACTIVITIES in NCEA: Provide epidemiology support for IRIS assessments. Serve as the chemical manager for the toxicological review of beryllium.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
American Board of Toxicology	DABT	2006	Toxicology
University of South Florida, FL	PhD	2002	Public Health: Epidemiology
University of South Florida, FL	MSPH	1999	Environmental & Occupational
University of South Florida, FL	BA	1998	Health
University of South Florida, FL	BS	1997	Natural Sciences-Clinical Laboratory Biology

RELEVANT PROFESSIONAL EXPERIENCE:

08/05 – present Epidemiologist, Integrated Risk Information System (IRIS), NCEA, ORD, U.S.EPA, Washington, D.C

06/04 – 07/05 Staff Toxicologist, Burdock Group, Washington, D.C.

05/03 – 05/04 Infection Control Coordinator, Florida Hospital, Orlando, FL

05/02 – 05/03 Postdoctoral Research Fellow, Department of Bioactive Molecules, National Institute of Infectious Diseases, Tokyo, Japan

SELECTED AWARDS and HONORS:

Japan Society for the Promotion of Science, Postdoctoral Fellowship 2002

INVITED LECTURES/SYMPOSIA

A.S. Persad, (2007) Risk Assessment Short Course (Invited Lecturer) Department of Toxicology and Molecular Biology, North Carolina State University, Raleigh, NC

A.S. Persad, G.C. Cooper (2007) Use of Epidemiology Data in IRIS Assessments (Invited speaker) 2007 Toxicology and Risk Assessment Conference, Cincinnati, OH

A.S. Persad, C.S. Scott, L. Kopylev (2006) Use of Cancer Epidemiology Studies in Acrylonitrile Cancer Assessment (Panel session IRIS Toxicological Review of Acrylonitrile) Society for Risk Analysis 2006 Annual Meeting, Baltimore, MD

RELEVANT PROFESSIONAL ACTIVITIES

11/2006 – present Forensic Epidemiologist, providing epidemiology support for a criminal enforcement action being compiled by the U.S. Department of Justice, Washington, D.C.

01/2006 – 05/2006 Professorial Lecturer, Department of Biology, American University Washington, D.C.

PEER –REVIEWED PUBLICATIONS

Book/Book Chapters, e.g.,

A.S. Persad (2007) “Epidemiology” INFORMATION RESOURCES IN TOXICOLOGY, 4TH EDITION (Eds. Philip Wexler, P.J. Bert Hakkinen, Asish Mohapatra. Steven Gilbert) Elsevier Publications, forthcoming

A.S. Persad (2007) “Regulatory Toxicology” INFORMATION RESOURCES IN TOXICOLOGY, 4TH EDITION (Eds. Philip Wexler, P.J. Bert Hakkinen, Asish Mohapatra. Steven Gilbert) Elsevier Publications, forthcoming

A.S. Persad (2007) “Risk Assessment” INFORMATION RESOURCES IN TOXICOLOGY, 4TH EDITION (Eds. Philip Wexler, P.J. Bert Hakkinen, Asish Mohapatra. Steven Gilbert) Elsevier Publications, forthcoming

NAME: Jon B. Reid

POSITION Toxicologist

EXPERTISE: Interpretation of human and animal studies for development of toxicity (non-cancer and cancer) values. Management and coordination of scientific products between producers and users for Superfund Human Health Technical Center

MAJOR ACTIVITIES in NCEA: Director of the Superfund Technical Support Center. This Center provides Provisional Peer Reviewed Toxicity Value Manuscripts for Superfund and provides technical assistance to scientists working in the SF program.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
L.A. Valley College	AA	1961	General Engineering
UCLA	BS	1963	Chemistry
University of Cincinnati	Ph.D.	1975	Toxicology/Environmental
Certification in Toxicology (D.A.B.T.)		Present	Health

RELEVANT PROFESSIONAL EXPERIENCE:

Adjunct Associate Professor, Univ. Cincinnati: Teaching Graduate course in human health risk assessment for 12+ years (including 2007).

SELECTED AWARDS and HONORS:

Recertified (2003) as Diplomat American Board of Toxicology (D.A.B.T.),

INVITED LECTURES/SYMPOSIA :

Course in basic principles of risk assessment at the annual Toxicology and Risk Assessment Conference in Cincinnati (2005, 2006)

RELEVANT PROFESSIONAL ACTIVITIES:

Attendance at the National Regional Risk Assessors Conference, 2006

PEER –REVIEWED PUBLICATIONS

Peer Review Journal Articles,

In: Molecular Carcinogenesis, Chapter 28, Regulatory Considerations in Carcinogenesis, **Reid, JB** and Bingham **E.**, Ed. Washawsky, published in 2007

"Safe on Mars, Precursor Measurements Necessary to Support Human Operations on the Martian Surface", Committee on Precursor Measurements Necessary to Support Human Operations on the Surface of Mars, Aeronautics and Space Engineering Board, Space Studies, Board, Division of Engineering and Physical Sciences, National Research Council, National Academy Press, Washington D.C. 2002: Available from National Academy Press, 2101 Constitution Ave, N.W. Box 285, Washington. DC 20055. Copyright 2002 by the National Academy of Sciences. International Standard Book Number: 0-309-08426-1

Book/Book Chapters

Four Chapters: In: Patty's Toxicology, Fifth Edition, Edited by Eula Bingham, Barbara Cohrssen and Charles H. Powell, John Wiley and Sons, Inc.

Chapter 63: Saturated Halogenated Aliphatic Hydrocarbons Two to Four Carbons, ISBN 0-471-31936-8

Chapter 84: Organic Peroxides, ISBN 0-471-31939-2

Chapter 62: Saturated Methyl Halogenated Aliphatic Hydrocarbons, ISBN 0-471-31835-8

Chapter 65: Dibenzo-pDioxins: 2,3,7,8-Tetrachlorodibenzo-p-Dioxin, ISBN 0-471-31936-8

NAME: Glenn Rice

POSITION: Environ. Health Scientist

EXPERTISE: Human health risk assessment of chemical mixtures and exposure assessment

MAJOR ACTIVITIES in NCEA: Co-author of the following EPA documents: *Mercury Study Report to Congress, Guidance for Conducting Health Risk Assessment of Chemical Mixtures and Considerations for Developing Health Risk Assessment Approaches for Addressing Multiple Chemicals, Exposures and Effects*

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Thomas More College, Covington, KY	BA AS	1983 1983	Biology Chemistry
Miami University School, Oxford, OH	MS	1987	Microbiology
Harvard University, School of Public Health, Boston, MA	Sc.D.	Anticipated	Environmental and Decision Sciences

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
1990 – Present	Environmental Health Scientist	EPA/ORD/NCEA	Cincinnati, OH
1988- 1990	Biochemist	Pathology Associates, Inc.	Cincinnati, OH

SELECTED AWARDS and HONORS:

Silver Medal Chemical Mixtures Risk Assessment Guidance

ORD Science Communication Award: Short Course on Methods and Guidance for Health Risk Assessment of Chemical Mixtures

Special Achievement “S” Award. Contributions to 2005 EPA Clean Air Mercury Rule

INVITED LECTURES/SYMPOSIA:

G. Rice. 2007. Exposure Assessment Approaches for Environmental Chemical Mixtures 2007 SRA/SETAC Joint Regional Meeting, March 14-16, 2007, Argonne National Laboratory, Argonne, IL

G. Rice. 2005. Should Future Studies of the National Estimate of Waterborne Disease Attributable to Drinking Water Employ Disease Burden Measures? Workshop on the National Estimate of Waterborne Disease (an activity mandated by the SDWA) Atlanta, GA

G. Rice. 2001-2005. Lecturer: Chemical Mixtures Risk Assessment. Harvard Center for Continuing Professional Education Short Course on Risk Assessment.

RELEVANT PROFESSIONAL ACTIVITIES:

President-Elect/President Ohio Chapter of Society of Risk Analysis 1999-2001

Adjunct Assistant Professor, Department of Analytical and Diagnostic Sciences, College of Allied Health Sciences, University of Cincinnati 2006-present
Guest Lecturer, University of Cincinnati, College of Arts and Sciences: *Applied Risk Assessment* Graduate Level Course. Lectured on Exposure Assessment and Risk Characterization 2002-present

Co-Presenter Chemical Mixtures Risk Assessment Short Course at Society of Risk Analysis Annual Meetings 2000-present

PEER-REVIEWED PUBLICATIONS:

Peer Review Journal Articles

J. Colman, **G. Rice**, J. M. Wright, E. S. Hunter III, L.K. Teuschler, J.C. Lipscomb, A. Fristachi, R.C. Hertzberg, J.E. Simmons, M. Fransen, M. Osier, M.G. Narotsky. Submitted. Development of Mode of Action Subgroups for Assessing Developmental Toxicity Risks Posed by Drinking Water Disinfection Byproduct Mixtures.

Fristachi, A. and **G. Rice**. 2007. Estimation of the total daily oral intake of NDMA attributable to drinking water. *Journal of Water and Health*. 5(3):341–355.

Rice, G., LK Teuschler, TF Speth, SD Richardson, RJ Miltner, K Schenck, C Gennings, ES Hunter, III, MG Narotsky, JE Simmons. Accepted. Assessing Reproductive and Developmental Risks Posed by Complex Disinfection By-Product Mixtures. *Journal of Toxicology and Environmental Health*

Rice, G., M.T. Heberling, M. Rothermich, J. M. Wright, P.A. Murphy, M. Craun and G. Craun. 2006. The Role of Disease Burden Measures in Future Estimates of Endemic Waterborne Disease. *Journal of Water and Health*. 4(2):187-199.

Rice, G., J. M. Wright, B. Boutin, J. Swartout, P. Rodgers, N. Niemuth, and M. Broder. 2005. Estimating tap water exposures to Mycobacterium avium complex in US AIDS Population. *J Toxicol Environ Health A*. 2005 Jun 11-25;68(11-12):1033-47.

Teuschler, L.K., **G.E. Rice**, C.R. Wilkes, J.C. Lipscomb, F.W. Power. 2004. A Feasibility Study of Cumulative Risk Assessment Methods for Drinking Water Disinfection By-Product Mixtures. *Journal of Toxicology and Environmental Health Part A*, 2004, 67:755-777.

Simmons, J. E., Teuscher, L. K., Gennings, C., Speth, T. F., Richardson, S. D., Miltner, R. J., Narotsky, M. G., Schenck, K. D., Hunter, E. S. III, Hertzberg, R. C. and **Rice, G.** 2004. Component-Based and Whole-Mixture Techniques for Addressing the Toxicity of Drinking-Water Disinfection-ByProduct Mixtures. *Journal of Toxicology and Environmental Health Part A*: 67:741-754.

Chen, J.J., Y.J. Chen, L.K. Teuschler, **G. Rice**, K. Hamernik, A. Protzel, R.L. Kodell. 2003. Cumulative Risk Assessment for Quantitative Response Data. *Environmetrics*. 14:339-353.

Richardson, SD, JE Simmons, and **G Rice**. 2002. Disinfection Byproducts: The Next Generation. *Environmental Science and Technology* May 198A-205A.

Hofstetter, P., J. Bare, J. Hammitt, P. Murphy and **G. Rice**. (2002). Tools for Comparative Analysis of Alternatives: Competing or Complementary Perspectives? *Risk Anal.* 22(5) 833-852.

Simmons, JE, SD Richardson, TF Speth, RJ Miltner, **G Rice**, K Schenck, ES Hunter, III, and LK Teuschler. 2002. Development of a Research Strategy for Integrated Technology-based Toxicological and Chemical Evaluation of Complex Mixtures of Drinking Water Disinfection Byproducts. *Environmental Health Perspectives*. 110(6)1013-1024.

Book Chapters

Hertzberg, R.C., **G.E. Rice**, L.K. Teuschler, J.M. Wright, J.E. Simmons. 2007. Health Risk Assessment of Chemical Mixtures in Drinking Water by in Risk Assessment of Chemicals in Drinking Water Robert A. Howd and Anna M. Fan (Eds).

Rice, G., Teuschler, L.K., J.E. Simmons, R.C. Hertzberg. 2005. Assessing Human Health Risks Posed by Environmental Chemical Mixtures. Encyclopedia of Toxicology (2nd edition) Editor in Chief: Phillip Wexler Published Elsevier Press.

Agency Documents:

U.S. EPA. 2006. Considerations for Developing Health Risk Assessment Approaches for Addressing Multiple Chemicals, Exposures and Effects. U.S. Environmental Protection Agency, National Center for Environmental Assessment, Cincinnati, OH. EPA/600/R-06/013A.

U.S. EPA. 2006. Using the Waterborne Disease Outbreak Surveillance System to estimate the Waterborne Disease Burden in the United States. External review draft. NCEA-C-1598.

U.S. EPA. 2003. The Feasibility of Performing Cumulative Risk Assessments for Mixtures of Disinfection By-Products in Drinking Water. ORD/NCEA Cincinnati, OH. EPA/600/R-03/051.

U.S. EPA. 2003. Developing Relative Potency Factors for Pesticide Mixtures: Biostatistical Analyses of Joint Dose-Response. EPA/600/R-03/052.

U.S. EPA 2003. *Mycobacterium avium* Complex: Exposure Assessment for a High Risk Population. NCEA-C-1412.

NAME: Reeder Sams II

POSITION: Health Scientist

EXPERTISE: Mode of action, carcinogenic risk assessment, oxidative stress, and metals.

MAJOR ACTIVITIES in NCEA: My current activities are focused on the development of human health risk assessments, coordination and organization of teams in support of these assessments, and participation in programmatic workgroups. Current and past programmatic workgroups include the ORD Mode of Action Workgroup, Oxidative Stress Workgroup, Nanotechnology Grant Review Committee, Cancer Slope Factor Workgroup for Arsenic, Dimethylarsinic Acid MOA Workgroup, and participation on multiple committees for research planning.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
West Virginia University, Morgantown, WV	BS	1992	Pre-Veterinary Medicine
University of Arkansas for Medical Sciences	PhD	1998	Toxicology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2003 – Present	Health Scientist	IRIS Staff / NCEA / ORD / USEPA	Research Triangle Park, NC
2001 – 2003	Health Scientist	HSD / NHEERL / ORD / USEPA	Research Triangle Park, NC
1998 – 2001	Research Chemist	National Center for Toxicological Research, Food and Drug Administration	Jefferson, AR

SELECTED AWARDS and HONORS:

2006 Environmental Protection Agency, Exceptional / Outstanding ORD Technical Assistance to the Regions or Program Offices, DMA Team OPP Support
2004 Environmental Protection Agency, Science and Technological Achievement Award (Level III)
2003 Environmental Protection Agency, ORD Team Award, Fallon Field Study Team

INVITED LECTURES/SYMPOSIA :

Sams, R.L. II, (Dayton, OH. March 2007) Applying Research to Mode of Action Analysis: Oxidative Stress. Toxicology and Risk Assessment Conference, *Platform Presentation*.

Sams, R.L. II, (Morgantown, WV. September 2006) A Case Study – Inorganic Arsenic and Organic Arsenicals, Research Needs for Human Health Risk Assessment. National Institute of Occupational Health Metals Conference, *Platform Presentation*.

Sams, R.L. II, Wolf, D., Nesnow, S., Flowers, L., Keshava, C., Guyton, K., and Devito, M. (RTP, NC. October 2006) Oxidative Stress as a Key Event or Mode of Action. ORD Scientist to Scientist Workshop: Using Oxidative Stress Research in Human Health Risk Assessment, *Platform Presentation*.

Sams, R.L. II, (Vancouver, Canada. September 2006) Issues Regarding Mode of Action Analysis for Arsenicals and Implications for Dose-Response Analysis. Environmental Mutagenesis Society, *Platform Presentation*.

Sams, R.L. II, (Shepherdstown, WV. May 2006) Inorganic Arsenic Mode of Action Issues. USEPA Workshop on Research and Risk Assessment for Arsenic, *Plenary Session, Platform Presentation*.

RELEVANT PROFESSIONAL ACTIVITIES:

Workshop Co-Chair: Advances and Challenges in the Incorporation of Mode of Action in Human Health Risk Assessment. Charlotte, NC. March 2007, Society of Toxicology Annual Meeting.

Organizing Committee and Co-Chair: Office of Research and Development Organizing Committee for Scientist to Scientist Workshop: Using Oxidative Stress Research in Human Health Risk Assessment. RTP, NC October 2006.

PEER –REVIEWED PUBLICATIONS

Peer Review Journal Articles, e.g.

Sams, R.L. II, Wolf, D.C., Ramasamy, S., Ohanian, E., Chen, J., and Lowit, A. (2007) Issues for consideration in human health risk assessment for arsenicals. EPub ahead of print in *Toxicology and Applied Pharmacology* (01/09/07)

Gallagher, J., **Sams II, R.**, Inmon, J., Gelein, R., Elder, A., Oberdorster, G., and Prahalad, A.K. (2003) Formation of 8-oxo-2'-deoxyguanosine, an oxidative adduct in the lung DNA of rats following sub-chronic inhalation of carbon black. *Toxicology and Applied Pharmacology*, 190, 224-31.

Howard, P.C., **Sams II, R.L.**, Dennis, D.A., and Wamer, W.G. (2002) Alpha-hydroxy acids: consideration of the biological effects and possible role in photocarcinogenesis. *Journal of Food and Drug Analysis*, 10, 258-261.

Howard, P.C., **Sams II, R.L.**, Bucher, J.R., Allaben, W.T. (2002) Phototoxicology and photocarcinogenesis at the U.S. Food and Drug Administration's National Center for Toxicological Research. *Journal of Food and Drug Analysis*, 10, 252-257.

Sams, R.L. II, Couch, L.H., Miller, B.J., Okerberg, C., Wamer, W.G., Beer, J.Z., and Howard, P.C. (2002) The effect of glycolic and salicylic acid on the induction of edema in SKH-1 mice due to simulated solar light. *Toxicology and Applied Pharmacology*, 184, 136-143.

NAME: Michael E. Troyer

POSITION: Branch Chief

EXPERTISE: Risk Assessment, Geographic/Spatial Analysis, Ecology

MAJOR ACTIVITIES in NCEA: Chief of NCEA's Biological Risk Assessment Branch. Manages scientific staff in Cincinnati devoted to the online development of guidance, methods and tools for discerning the causes of impairments affecting the quality of our Nation's streams. Also oversees key staff involved in developing Provisional Peer-Reviewed Toxicity Values (PPRTVs) and providing scientific support in the assessment and remediation of over 1,500 contaminated sites listed on Superfund's National Priorities List.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
DePauw University	B.A.	1984	Zoology
Indiana University	M.S.	1987	Environmental Science/Aquatic Ecology
Indiana University	M.P.A.	1987	Environmental Policy and Public Administration
University of Cincinnati	Ph.D.	1999	Geography (GIS and remote sensing)

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2001 - 2005	Team Leader	EPA/ORD/NCEA/Scientific Assessment Support Team	Cincinnati, OH

SELECTED AWARDS and HONORS:

Scientific and Technological Achievement Award for research assisting EPA's interdisciplinary mission to protect the Nation's ecosystems and the welfare of its people (2003).

Superior Accomplishment Recognition Award for developing the Standard Operating Procedure for the production of Peer Reviewed Provisional Toxicity Value (PPRTV) papers for the Office of Solid Waste and Emergency Response (2004).

Bronze Medal. EPA team honor award for the scientific expertise, leadership and organizational skill required to create the Agency's first guidance on selecting assessment endpoints for ecological risk assessment. (2004).

INVITED LECTURES/SYMPOSIA:

Troyer, M.E. 2006. *Adventures in Risk Assessment*. Invited keynote speaker for Indiana University's School of Public and Environmental Affairs' graduate student orientation, Bloomington, IN, August 23, 2006.

Troyer, M.E. 2005. *IRIS 101: The Integrated Risk Information System*. Invited presentation to a seminar series sponsored by the U.S. EPA's National Risk Management Research Laboratory, Cincinnati, OH, April 27, 2005

Troyer, M.E., P. Daunt, A. Galizia, M. Gehlhaus, D. Cooper, and D. Crawford. 2005. Impacting Superfund Decisions: Toxicity Assessments and Values. Invited presentation to the OSWER/ORD Seminar Series, U.S. Environmental Protection Agency, Washington, DC, March 15, 2005.

Troyer, M.E. 2004. *An overview of the National Center for Environmental Assessment's Cincinnati Division and the Science Assessment Support Team (SAST)*. Invited presentation for the Regional Hazardous Substances Technical Liaisons Meeting, Cincinnati, OH, December 8, 2004.

Troyer, M.E. 2004. *Generic ecological assessment endpoints (GEAEs) for ecological risk assessment*. Invited special exhibit and poster presentation at U.S. EPA's 2004 Science Forum: Healthy Communities and Ecosystems, June 1-3, 2004, Washington, DC.

RELEVANT PROFESSIONAL ACTIVITIES

Technical Panel, U.S. EPA Risk Assessment Forum, 2002-2003

Member, AAG, 1998 - present

Member, Sigma Xi, 2005 - present

PEER –REVIEWED PUBLICATIONS

Peer Review Journal Articles

Suter, G.W., II, D.J. Rodier, S. Schwenk, **M.E. Troyer**, P.L. Tyler, D.J. Urban, M.C. Wellman and S. Wharton. 2004. The U.S. Environmental Protection Agency's generic ecological assessment endpoints. *Human Ecol. Risk Assess.* 10(6):967-981.

Troyer, M.E. 2002. A spatial approach for integrating and analyzing indicators of ecological and human condition. *Ecological Indicators* 2:211-220.

Agency Documents (including final Assessments)

Troyer, M.E., J. Heo and H. Ripley. 2006. *Classification of High Spatial Resolution, Hyperspectral Remote Sensing Imagery of the Little Miami River Watershed in Southwest Ohio, USA*. U.S. Environmental Protection Agency, National Center for Environmental Assessment, Cincinnati, OH. EPA/600/R-06/107.

U.S. Environmental Protection Agency. 2003. *Generic Ecological Assessment Endpoints (GEAEs) for Ecological Risk Assessment*. Risk Assessment Forum, Washington, DC. EPA/630/P-02/004F.

NAME: George M. Woodall, Jr.,

POSITION: Toxicologist

EXPERTISE: Less-than-lifetime inhalation health risk assessment

MAJOR ACTIVITIES in NCEA: Project Lead for the development of the Acute Inhalation Health Risk Assessment Methodology; Chemical Manager for revisions to the IRIS Assessment of Styrene, and the Draft Health Risk Assessment for Acute and Short-term Exposures to Ethylene Oxide; Managing Program to develop a Database of Toxicological Exposure-Response Data; ORD Representative to the National Advisory Committee for Acute Exposure Guideline Levels (AEGLs) and Chemical Manager for several AEGL chemicals; Ad Hoc Advisor to the Provisional Advisory Level (PAL) program within NHSRC; Participant in IRIS Pilot Project to incorporate RAF recommendations to improve the RfD/RfC process; Member of the interagency Workgroup to develop the Cleanup Decision-Making Guidance for Chemical Incidents of National Significance (coordinated by the White House); Member of the ORD Red Team.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Florida, Gainesville, FL	BS	1983	Microbiology and Cell Science
East Tennessee State University, Johnson City, TN	MSEH	1985	Environmental Health
North Carolina State University, Raleigh, NC	PhD	1996	Toxicology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2002 – Present	Toxicologist	EPA/ORD/NCEA	Research Triangle Park, NC
2000 – 2002	Senior Toxicologist	American Petroleum Institute	Washington, DC
1995 – 2000	Senior Toxicologist	Pacific Environmental Services (PES)	Research Triangle Park, NC
1992 – 1995	Toxicologist	Science Applications International Corporation (SAIC)	Research Triangle Park, NC
1987 – 1992	Toxicologist	TRC Environmental Corporation	Research Triangle Park, NC
1986 – 1987	Toxicology Trainee	NC State University	Raleigh, NC

SELECTED AWARDS and HONORS:

Bronze Award, 2004

“S” Awards (2), 2005 and 2006

“On-the-Spot” Awards (9), 2002 – 2007

INVITED LECTURES/SYMPOSIA:

Lecture: “Case Studies from the Current AEGL Process,” Toxicology Forum – Winter Meeting, Washington, DC (January 2006)

Symposium Co-Chair and Presenter: "Acute Health Risk Assessment: Case Studies and Methodological Issues," SRA Meeting, Orlando, FL (December 2005)

Lecture: "EPA Reference Values: Regulatory Context," Leland Urban Air Toxics Research Center, Houston, TX (October 2005)

Lecture: "Developing an EPA Acute Inhalation Methodology," Regional Risk Assessors Conference, Kansas City, MO (May 2005)

Lecture: "Development and Uses of Acute Reference Values" Research Triangle Chapter of the Society for Risk Analysis, Mini-symposium on Acute Guideline Values, RTP, NC (June 2003)

RELEVANT PROFESSIONAL ACTIVITIES:

Full Member: Society of Toxicology

Member: North Carolina Society of Toxicology

Associate Member: Sigma Xi

Member: Society for Risk Analysis

Member of the US Delegation to the OECD Ad Hoc Inhalation Experts Workgroup, and Co-Chair of the Performance Assessment Group reviewing a CxT protocol for possible inclusion in Test Guideline 403 (Acute Inhalation Toxicity).

PEER –REVIEWED PUBLICATIONS

Peer Review Journal Articles

L.D. Claxton and **G.M Woodall** (2007) A review of the mutagenicity and rodent carcinogenicity of ambient air, Mutation Research/Reviews in Mutation Research, In Press, Corrected Proof, Available online 18 March 2007.

(<http://www.sciencedirect.com/science/article/B6T2G-4N919SV-1/2/314034f54dbe0e63b7aaf651b2c43f6d>)

Woodall, G.M., R.L. Smith, and G. Granville (2005) Proceedings of the Hydrogen Sulfide Health Research & Risk Assessment Symposium: October 31- November 2, 2000, Chapel Hill, NC. Inhalation Toxicology, 17(11): 593-639.

Woodall, G.M. (2005) Acute health reference values: Overview, perspective, and current forecast of needs. Journal of Toxicology and Environmental Health, Part A, 68:901-926

Agency Documents

Preliminary Methodology for Assessment of Health Effects from Acute Inhalation Exposures, Interagency Review Draft, EPA 600/R-05/112 (August 2006)

IRIS Toxicological Review for Ethylene Oxide: Acute Assessment (Submitted for Interagency Review, September 2006)

IRIS Toxicological Review for Styrene (In process)

Long-Term Goal 2

Presenters

Long Term Goal 2

Session Coordinator

Stan Barone

Presenters

NAME: Stan Barone Jr.

POSITION: Research Biologist

EXPERTISE: Neurotoxicology, Mode of Action, Risk to Susceptible Populations

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
Belmont Abbey College, Belmont, NC	B.S.	1982	Biology
East Carolina University, Greenville, NC	M.S.	1985	Biology
East Carolina University School of Medicine, Greenville, NC	Ph.D.	1990	Anatomy & Cell Biology

RELEVANT PROFESSIONAL EXPERIENCE:

2007 –present Acting Assistant Center Director for Human Health, NCEA, USEPA
2004 –2007 Senior Research Biologist in Effects Identification & Characterization Branch, NCEA-W, USEPA
2003-2004 Research Biologist in Cellular and Molecular Toxicology Branch, NHEERL, USEPA
1997- 2003 Research Biologist in Cellular and Molecular Toxicology Branch, NHEERL, USEPA
1995- 1997 Research Biologist in Cellular and Molecular Toxicology Branch, NHEERL, USEPA
1994-1995 Research Scientist; ManTech Environmental contractor NHEERL, USEPA.
1992-1994 Project Scientist; ManTech Environmental contractor NHEERL, USEPA
1990-1992 Senior Scientist; ManTech Environmental contractor NHEERL, USEPA
1985-1990 Ph.D. candidate Dissertation project: *The effects of exogenous NGF and transplantation of fetal hippocampal cells after intradentate administration of colchicine.*

SELECTED AWARDS and HONORS:

Scientific and Technical Achievement Award (STAA Level III) 2003: Rice, D. and Barone, S. Jr. (2000) Critical periods of vulnerability for the developing nervous system: Evidence from humans and animal models. *EHP suppl. on Children's Health* **108 (suppl. 3)**, 511-533.

Scientific and Technical Achievement Award (STAA Honorable Mention) 2006: Mundy, W.R., Shafer T.J, Barone, S. Jr., Gilbert, M.E., Meacham, C.A., Freudenrich, T.M., Lyons- Darden, T., Anderson, W.L., and Sui, L., Evaluation of the appropriate dose metric for neurotoxicants in numerous in vitro models. *This effort included a series of peer reviewed papers.*

NHEERL Award for Outstanding Leadership (2002) for developing the Agency's response to the delisting petition for methanol.

INVITED LECTURES/SYMPOSIA

- Barone, S. Jr.**, Overview of Office of Research and Development children's health research program. *Children's Environmental Health Network*. Methodist Building. Washington, DC March 24, 2005.
- Barone, S. Jr.**, Children's health risk assessment framework looking toward implementation. *Regional Risk Assessors Meeting*. Kansas City, Kansas. May 1, 2005.
- Barone, S. Jr.** & Scott, C.S., Characterization of uncertainties: How do we define these uncertainties per application of Uncertainty Factors. *Society for Risk Analysis Meeting*, December 4-7, 2005, Orlando, FL
- Barone, S. Jr.** Brown, R.C., Euling, S., Hubal, E., Kimmel, C.A., El-Masri, H., Moya, J., Selevan, S.G., Sonawane, B., Employing A Children's Health Risk Assessment Framework Using A Life-Stage Approach *Society for Risk Analysis Meeting*, December 4-7, 2005, Orlando, FL
- Barone, S. Jr.**, Developmental neurotoxicity of methanol in animals. *Symposium and Panel discussion- Methanol- is it a developmental toxicant? 28th Annual Summer Toxicology Forum*. Aspen, CO, July 7-12, 2002.
- Barone, S. Jr.**, Overview of children's health risk assessment. *Healthy Environments, Healthy Children: Increasing Knowledge and Taking Action*. Sponsored by WHO. Panamericano Crowne Plaza Hotel, Buenos Aires, Argentina, November 14-16, 2005

RELEVANT PROFESSIONAL ACTIVITIES:

- Consultant to OPPT/OAR/ATSDR on Toxic Substance Control Act (TSCA) section 4 Proposed Test Rule for Testing Neurotoxicity of Selected Solvents (2004-05). Responsibility included review and revision of findings document, identification of additional testing requirements and suitable guidelines to address testing needs. Additional responsibilities included assistance of OPPT in responding to Office of Management and Budget and industry group comments.
- Team leader of effort to develop *A Framework for Assessing Health Risks of Environmental Exposure to Children* (2005-present). Principal author and editor of this document and leader of the interdisciplinary effort to develop this document.
- ORD Reviewer and coauthor of revised EPA Developmental Neurotoxicity Testing guidelines in response to EPA SAB/SAP comments (2005-2006).
- ORD Reviewer and coauthor of revised OECD Developmental Neurotoxicity Testing guidelines.
Draft 3 and 4 (2005-2006).
- Member of NCEA mode of action (MOA) framework (2006-present)- team to develop approaches document for application of MOA information risk assessment.
- Member of ORD MOA workgroup (2006-present)- broad based membership across EPA to discuss research on MOA and research needs for risk assessment and discusses implementation of MOA information risk assessment.
- Member of Risk Assessment Forum technical panel on MOA framework employing human relevance analysis (2006-present)
- Member of Risk Assessment Forum Human Health oversight panel (2007-present)
- Ad hoc* reviewer for Food & Drug Administration (FDA) National Center for Toxicological Research (NCTR)- Intramural research proposals (July 2002).
- Member of Interagency Workgroup on Development and Behavior to National Children's Study (NCS)*, (2002-2005).
- Facilitator of Interagency Workgroup meeting in April, July, and December 2002.

- Principal CoAuthor of Core Hypothesis on *Gene and Environmental Interactions for Neurodevelopment & Behavior Workgroup of National Children Study*.
 - Developed expert peer panel workshop to provide recommendations for early neurological testing to be employed in (NCS).
- Reviewer for Center for Environmental and Rural Health (CERH) at Texas A&M University pilot grants program (May 2003).
- Reviewer for Veterans Administration on role of cholinesterase inhibition in Gulf War Illness (September, 2004)
- Invited Expert Panel member of Hershey Medical Center Technical Workshop: Optimizing the Design and Interpretation of Epidemiologic Studies for Assessing Neurodevelopmental Effects from *In Utero* Chemical Exposure, Research Triangle Park, NC September 14, 2005
- Reviewer Department of Veterans Affairs' Environmental Hazards Research Centers Proposals (June, 2006).
- Reviewer for NCER-EPA/NIEHS proposals for Centers for Environmental Excellence on Children's Health (August, 2006)
- Reviewer for US Army specialty section on Neurotoxin Exposure Treatment Research Program (December 2006).

PEER –REVIEWED PUBLICATIONS -Recent Publications (Selected from a total of 60 peer reviewed papers and book chapters)

Morgan, D.L., Chanda, S.M., Price, H.C., Fernando, R., Liu, J., Brambilia, E., O'Conner, R.W., Beliles, R.P., & **Barone, S. Jr.** Disposition of Inhaled Mercury Vapor in Pregnant Rats: Maternal toxicity and Effects on Developmental Outcomes. *Tox. Sci.* **66** (2), 261-273 (2002)

Shafer, T.J., Meacham, C.A., & **Barone, S. Jr.** Effects of subacute exposure to nanomolar concentrations of methylmercury on voltage-gated sodium and calcium currents in PC12 cells. *Dev. Brain Res.* **136** (2), 151-164, (2002).

Parran, D.K., **Barone, S. Jr.**, & Mundy, W.R. Methylmercury inhibits NGF-induced TrkA autophosphorylation and neurite outgrowth in PC12 cells. *Dev. Brain Res.* **141**(1-2), 71-81 (2003)

Meacham, C.A., White, L.D., **Barone, S. Jr.** & Shafer, T.J. Ontogeny of voltage-sensitive calcium channel α_{1A} and α_{1E} subunit expression and synaptic function in rat central nervous system. *Dev. Brain Res.* **142**(1), 47-65 (2003)

Jenkins, S. M., & **Barone, S. Jr.**, The neurotoxicant trimethyltin causes apoptosis via oxidative stress, caspase activation and P38 protein kinase. *Toxicol. Letters* **147**(1), 63-72. (2004)

Parran, D.K., **Barone, S. Jr.**, & Mundy, W.R. Role of MAP kinase and Protein Kinase C in Methylmercury inhibition of neurite outgrowth in PC12 cells. *Dev. Brain Res.* **149**(1), 53-61 (2004)

Jenkins, S. M., Ehman, K., & **Barone S. Jr.** Structure-Activity Comparison of Organotin Species: Dibutyltin is a Developmental Neurotoxicant *In Vitro* and *In Vivo*. *Dev. Brain Res.* **151**, 1-12 (2004)

Herr, D.W., Chanda, S.M., Graff, J.E., **Barone, S. Jr.**, Beliles, R.P., and Morgan, D.L. Evaluation of sensory evoked potentials in Long-Evans rats gestationally exposed to mercury (Hg⁰) vapor. *Tox. Sci.* **82**, 193-206 (2004)

Meacham, C.A., Freudenrich, T.M., Anderson, W.L., Sui, L., Lyons-Darden, T., **Barone, S. Jr.**, Gilbert, M.E., Mundy, W.R., and Shafer T.J. Accumulation of the persistent environmental toxicants methylmercury or polychlorinated biphenyls in *in vitro* models and relevance to *in vivo* levels in rat neuronal tissue. *Toxicol. Appl. Pharmac.* **205**(2), 177-87 (2004)

Bingham, E., **Barone, S. Jr.**, Burin, G., Chapin, R., Davis, J.M., Dorman, D., Glowa, J.R., Hansen, D., Matthews, H.B., Miller, M., Nauss, K.M., Rogers, J.M., & Shelby, M. NTP-CERHR Expert panel report on the reproductive and developmental toxicity of methanol. *Reproductive Toxicology* **18**, 303-390 (2004)

Moser, V.C., **Barone, S. Jr.**, Phillips, P.M., McDaniel, K.L., & Ehman, K.D., Evaluation of developmental neurotoxicity of organotin via drinking water in rats: monomethyl tin. *NeuroToxicology*. **27**(3), 409-20 (2006)

Morgan DL, Price HC, Fernando R, Chanda SM, O'Connor RW, **Barone S. Jr.**, Herr DW, & Beliles RP. Gestational mercury vapor exposure and diet contribute to mercury accumulation in neonatal rats. *Environ Health Perspect.* **114**(5), 735-739 (2006)

Barone, S. Jr., Brown, R.C., Euling, S., Cohen Hubal, E., Kimmel, C.A., Makris, S., Moya, J., Selevan, S.G., Sonawane, B., Thomas, T. & Thompson, C. Overview of a life stage approach to children's health risk assessment. *Acta Toxicologica Argentina* **14**:7-10. Translated into Spanish. (2006)

Lakind J, **Barone, S. Jr.**, Frank, H., Lipkin, P., Harry, J., Needham, L., Lorber, M., Hooper, S., Belger, A., Goodman, M., Cox, C., Myers, G., Amler, R., Lipsitt, L., & Wachs, T. Workshop on technical workshop report: optimizing the design and interpretation of improving methods project to identify critical methodological factors in epidemiologic studies for to assessing neurodevelopmental effects from *in utero* chemical exposure: Conceptual overview. *NeuroToxicology*. **27**(5), 861-74. (2006)

White, L. D., Hunter, S., Miller, M.W., Ehrich, M.F., **Barone, S. Jr.** The role of apoptosis in neurotoxicology. *In Vitro Neurotoxicology: Principles and Challenges*, Humana Press, Totowa, New Jersey, Chapter 5, pp 95-132. (2004)

Barone, S. Jr., Kodavanti, P.R.S., and Mundy, W.R Effects of toxicants on neural differentiation. *In Vitro Neurotoxicology: Principles and Challenges*, Humana Press, Totowa, New Jersey, Chapter 8, pp 187-216. (2004)

U.S. Environmental Protection Agency A Framework for Assessing Health Risks to Children from Environmental Exposures . **Barone, S. Jr.**, Brown, R.C., Euling, S., Hubal, E., Kimmel, C.A., El-Masri, H., Moya, J., Selevan, S.G., Sonawane, B., Thomas, T. 2006 APM. EPA/600/R-05/093F
<http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=158363>

U.S. Environmental Protection Agency Toxicological Review of
Tetrachloroethylene (Perchloroethylene)(CAS No. 127-18-4) In Support of
Summary Information on the Integrated Risk Information System (IRIS)
McGaughy, R.E., **Barone, S. Jr.**, Beck, N., Hogan, K., Makris, S., Parker, J., Rice,
D., Rigas, M., Scott, C.S., Subramaniam, R., Valcovic, L., Brown, R., Keshava, K.
External Review Draft September 21, 2006

Other Government Documents.

National Children's Study Workshop Report on Neurobehavioral Development and
Environmental Exposures: Measures for the National Children's Study, September
27–28, 2004. Chairs of this effort were Drs. Carole Kimmel and Stan Barone.
(http://nationalchildrensstudy.gov/events/workshops/Neurobehavioral_Development.cfm).

NAME: Rebecca Brown

POSITION: Health Scientist

EXPERTISE: Susceptible populations in health risk assessments

MAJOR ACTIVITIES in NCEA: Incorporating considerations of susceptibility into risk assessment, specifically in chemical assessments of perchloroethylene, ethylene dichloride, and trichloroethylene. Co-authored EPA documents *A Framework for Assessing Health Risks of Environmental Exposures to Children*, and *Aging and Toxic Response: Issues Relevant for Risk Assessment*.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Tufts University, Medford, MA	BA	1997	Child Development
Yale University School of Epidemiology and Public Health, New Haven, CT	MPH	2003	Environmental Health
Yale University School of Forestry and Environmental Studies, New Haven, CT	MEM	2003	Environmental Health

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2005 – Present	Health Scientist	EPA/ORD/NCEA	Washington, DC
2003 – 2005	ASPH/EPA Fellow	Association of Schools of Public Health	Washington, DC

SELECTED AWARDS and HONORS:

EPA Performance award. 2005, 2006.

EPA Time-off award, Congressional Request to review ORD Human Study Files. 2005.

INVITED LECTURES/SYMPOSIA:

RELEVANT PROFESSIONAL ACTIVITIES:

Member, American Public Health Association (2002 – 2004)

Member, Society of Toxicology (2004 – 2006)

Member, Teratology Society, member of the Public Affairs Committee (2006 – present)

Organized workshop on *Cancer and the National Children's Study: Opportunities and Challenges*. Bethesda, MD, May 20, 2004

Organized 1st workshop of *International Childhood Cancer Cohort Consortium*. Rockville, MD, September 29-30, 2005

Organized 2nd workshop of *International Childhood Cancer Cohort Consortium*. Copenhagen, Denmark, August 29-30, 2007

PEER-REVIEWED PUBLICATIONS:

Peer Review Journal Articles

Brown R.C., Lockwood A.H., Sonawane B.R. Neurodegenerative diseases: an overview of environmental risk factors. *Environ Health Perspect* 113(9):1250-1256 (September 2005).

Brown RC. Review: Windows of exposure to pesticides for increased risk of childhood leukemia. *Toxicol Environ Chem* 88(3): 423-443 (July-September 2006).

Barone S Jr., **Brown RC**, Euling S, Cohen Hubal E, Kimmel CA, Makris S, Moya J, Selevan SG, Sonawane B, Thomas T, Thompson C. Visión general de la evaluación del riesgo en salud infantil empleando un enfoque for etapas de desarrollo. *Acta Toxicol Argent* 14:7-10 (August 2006).

Brown RC, Dwyer T, Kasten C, Krotoski D, Li Z, Linet MS, Olsen J, Scheidt P, Winn DM, for the International Childhood Cancer Cohort Consortium (I4C). Cohort Profile: The International Childhood Cancer Cohort Consortium (I4C). *Int J Epidemiol*. Online advance access January 25, 2007. <http://ije.oxfordjournals.org/cgi/content/full/dyl299v1>

Agency Documents:

U.S. Environmental Protection Agency. Aging and Toxic Response: Issues Relevant to Risk Assessment (final report). EPA/600/P-03/004A. ORD/NCEA, Washington, DC (2006)

U.S. Environmental Protection Agency. A Framework for Assessing Health Risks to Children from Environmental Exposures (final report). EPA/600/R-05/093A. ORD/NCEA, Washington, DC (2006)

NAME: Danielle DeVoney,

POSITION: Toxicologist
Commander in the U.S. Public Health Service

EXPERTISE: Inhalation, fibers, immunotoxicology; Environmental Engineering

MAJOR ACTIVITIES in NCEA: Chemical Manager for asbestos Health Assessment work including an ongoing noncancer assessment for asbestos, an upcoming cancer assessment and chemical specific assessment of the Libby amphibole. Additionally, a member of the Formaldehyde assessment team working on the toxicology and mode of action sections.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
Duke University, Durham, NC	BSE	1986	Civil Engineering
Continuing Education while in the AF included– as well as AF courses	None	1988-1993	Masters level courses in Environmental Engineering
University of Wisconsin, Madison, WI	PhD	1999	Environmental Toxicology
	PE	2001	Environmental Engineering
Professional Engineer's license	DABT	2006	Toxicology
Diplomate of the American Board of Toxicology			

RELEVANT PROFESSIONAL EXPERIENCE:

USPHS Engineering Officer

Toxicologist	U.S. EPA Washington, DC	Jan 2004 - present
Engineer/Toxicologist	CDC/ATSDR Atlanta, GA	Sept 2000 - Jan 2004
Public Health Assessor/Engineer	CDC/ATSDR Atlanta, GA	Sept 1999 - Sept 2000

USAF Bioenvironmental Engineer

Chief, Environmental Health	Hill AFB, UT	Nov 1991- Aug 1993
Bioenvironmental Engineer	Patrick AFB, FL	Aug1990 - Nov 1991
Restoration Project Manager	Kelly AFB, TX	Dec 1988 - Aug 1990
Chief,Environmental Monitoring & Health	Kelly AFB, TX	Oct 1986 - Dec 1988

SELECTED AWARDS and HONORS:

PHS Awards

US PHS Outstanding unit Citation, 2002
US PHS Crisis Response Ribbon, 2002

Other Awards

Cumming Award, Society of American Military Engineers, 2005
(Readiness and Response Group Engineers and Environmental Health Officers)
ATSDR Agency, Engineer of the Year, National Society of Professional Engineers, 2003 (Identified as top-ten in Federal service)

INVITED LECTURES/SYMPOSIA:

"A hypothesized mode of action in support of the biological plausibility of formaldehyde-induced Lymphohematopoietic malignancies" Society of Risk Analysis, Baltimore MD, December, 2006

RELEVANT PROFESSIONAL ACTIVITIES

US PHS: Member of Professional Development subcommittee of EPAC (2001-2002) (Engineering Professional Advisory Committee.)

- Organized the Engineering Category day for the Commissioned Officer's Association's (COA) National Public Health Conference (COA) 2002
- Reviewed professional development materials for the career field - 2007

PEER –REVIEWED PUBLICATIONSTechnical Reports:

Final Technical Report of the Public Health Investigation to Assess Potential Exposures to Airborne and Settled Surface Dust in Residential Areas of Lower Manhattan, New York City Department of Health and Mental Hygiene and Agency for Toxic Substance and Disease Registry, U.S. Department of Health and Human Services, as a part of the World Trade Center Environmental Assessment Working Group, September 2002.

World Trade Center Indoor Environmental Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks, World Trade Center Indoor Air Task Force Writing Group: (May, 2003).

Health Consultation ABSCO Junkyard, Philadelphia, Philadelphia County, Pennsylvania, Agency for Toxic Substance and Disease Registry, U.S. Department of Health and Human Services, 2003. Petitioned Health Consultation Cady Road, North Royalton, Cuyahoga, Co, Ohio, Agency for Toxic Substance and Disease Registry, U.S. Department of Health and Human Services, 2003.

Petitioned Health Consultation Atlantic Station Redevelopment, Atlanta, Fulton County, Georgia, Agency for Toxic Substance and Disease Registry, U.S. Department of Health and Human Services, 2003. Health Consultation Chemical Commodities, Inc. Site (a/k/a Chemical Commodities, Inc. Olathe), Johnson County, Kansas, Agency for Toxic Substance and Disease Registry, U.S. Department of Health and Human Services, 2003.

NAME: Susan Y. Euling **POSITION:** Biologist

EXPERTISE: Developmental biology, puberty timing, endocrine disruptors

MAJOR ACTIVITIES in NCEA : Co-chair of the steering committee for the role of environmental factors in puberty timing workshop; lead EPA report on cross-species mode of action information case study of bisphenol A, and a team member of the framework for children's health risk assessment EPA report. Ongoing projects include assessing developmental toxicity for chemical health assessments and the lead on a case study to test an approach to using toxicogenomic data in risk assessment.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
University of California, Santa Cruz	B.S.	1985	Biology
Columbia University, NY, NY			Biology
Harvard University, Cambridge, MA	Ph.D.	1994	Developmental Biology
University of Minnesota, St. Paul, MN (Postdoc)		1994-97	Developmental Biology

RELEVANT PROFESSIONAL EXPERIENCE:

1985 Teaching Assistant, Molecular Biology Project Lab Course, Columbia University
1985-1986 Technician, Pollack Laboratory, Columbia University
1986 Teaching Fellow, Genetics and Biological Sciences 1, Harvard University
1986-1991 Predoctoral Research, Department of Cellular and Developmental Biology, Harvard University
1991-1994 Predoctoral and Postdoctoral Research, Department of Biology, Dartmouth College
1994-1997 Postdoctoral Associate, Dept of Genetics and Cell Biology, Un. Minnesota
1997-1999 AAAS Science and Engineering Risk Assessment Fellow, National Center for Environmental Assessment (NCEA), U.S. EPA

1999-2001 Scientist, Wildlife and Contaminants Program, World Wildlife Fund
2001-present Biologist, NCEA, U.S. EPA

SELECTED AWARDS and HONORS

Science and Technology Achievement Award (STAA), Level I, US-EPA (2004)
STAA Honorable Mention, US-EPA (2004)
Cash and Time Off Awards, NCEA, US-EPA (2001-2006)

INVITED LECTURES/SYMPOSIA:

Invited Speaker and Session Chair, Moving Upstream: A Workshop on Evaluating Adverse Upstream
Endpoints for Improved Decision Making and Risk Assessment, "Using Toxicogenomics Data in Risk Assessment of Anti-Androgens," Berkeley, CA, May 16, 2007.

Invited Speaker, Second Workshop on Low Dose Effects of Chemicals with Special Consideration of Phthalates, "An Approach to Using Toxicogenomics Data in Risk Assessment: A Dibutyl Phthalate Case Study," Berlin, Germany, April 29, 2007.

Invited Speaker, 2007 UCSF-CHE Summit on Environmental Challenges to Reproductive Health and Fertility, "Examination of U.S. Puberty Timing Data from 1940 to 1994 for Secular Trends: Panel Findings," SF, CA, Jan. 29, 2007.

Invited Speaker, National Academy of Sciences Use of Toxicogenomics to Understand Toxic Effects and Improve Risk Assessment, "An Approach to Using Toxicogenomics Data in Risk Assessment: Dibutyl Phthalate (DBP) Case Study," Washington, DC, November 13, 2006.

Invited Speaker, U.S. EPA Endocrine Disruptors Workshop: Program Review of the Extramural and Intramural Research, "Cross Species Mode of Action Information Assessment for Bisphenol A," RTP, NC, 2002.

RELEVANT PROFESSIONAL ACTIVITIES:

Co-Chair of EPA's Risk Assessment Forum's Genomics Training Steering Committee (2006 to present)

Steering Committee Member for the EPA sponsored workshop entitled, "The Role of Environmental Factors on the Onset and Progression of Puberty," Nov. 6-8, 2003, Rosemont, Illinois.

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles

Bostwick, D.G., Burke, H.B., Djakiew, D., **Euling, S.**, Ho, S.M., Landolph, J., Morrison, H., Sonawane, B., Shifflett, T., Waters, D.J., and B. Timms, 2004. Human prostate cancer risk factors. *Cancer* 101(10 Suppl):2371-2490.

Selevan, S.G., Rice, D.C., Hogan, K.A., **Euling, S.Y.**, Pfahles-Hutchens, A., and J. Bethel, 2003. Blood lead concentration and delayed puberty in girls. *New England Journal of Medicine* 348(16), 1527-1536.

Euling, S.Y., Gennings, C., Wilson, E.M., Kemppainen, J.A., Kelce, W.R., and C.A. Kimmel, 2002. Response-surface modeling of the effect of 5 α -dihydrotestosterone and androgen receptor levels on the response to the androgen antagonist vinclozolin. *Toxicological Sciences* 69, 332-343.

Book/Book Chapters

Kimmel, C.A., Kimmel, G.L., and **S.Y. Euling**. Book Chapter, "Developmental and Reproductive Toxicity Risk Assessment for Environmental Agents," for *Handbook of Developmental Toxicology*, Hood, R.D., Ed., CRC Press, Boca Raton.

Kennedy, SW, **Euling, S**, Huggett, DB, De Coen, W, Snape JR, Zacharewski TR, and Kanno J, *submitted*. Book Chapter, "The Development of Genomic-Based Screening Assays for Ecotoxicology," for the Pellston Genomics in Risk Assessment Workshop, Florida.

Agency Documents

U.S. EPA (2005) A cross-species mode of action information assessment: a case study of bisphenol a. EPA/600/R-50/044F. Available from: National Technical Information Service, Springfield, VA, and online at <http://www.epa.gov/ncea>. (lead author)

U.S. EPA (2005) A framework for assessing health risks of environmental exposures to children [external review draft]. EPA/600/R-05/067A. Available online at <http://www.epa.gov/ncea>. (co-author)

U.S. EPA (2003) NCEA Colloquium on Current Use and Future Needs of Genomics in Ecological and Human Health Risk Assessment, [final workshop summary] EPA/600/R-040/039. (Co-author)

NAME: Jeffrey B. Frithsen

POSITION: Branch Chief

EXPERTISE: Environmental monitoring, causal analysis and ecological risk assessment; contaminant fate and behavior; systems ecology and community interactions; exposure assessment; scientific information management; metadata management and design; information systems design.

MAJOR ACTIVITIES in NCEA: Chief of the Exposure Analysis and Risk Characterization Group within the NCEA Washington Division. Provides oversight of NCEA's Exposure Assessment Team, including the Exposure Factors Program, chemical exposure assessments, and exposure methods and guidance activities. Also coordinates NCEA's ecological causal assessment program and provides support for NCEA's work on invasive species.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
Boston College, Chestnut Hill, MA	BA	1977	Biology
Harvard School of Public Health, Cambridge, MA	Certificate	1982	Environmental and Occupational Radiation Protection
University of Rhode Island, Kingston, RI	Ph.D.	1984	Oceanography

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2003 – Present	Supervisory Biologist	USEPA-ORD-NCEA	Washington, DC
2001 – 2003	Assistant Center Director, Multimedia Research Ecology	USEPA-ORD-NCEA	Washington, DC
2000 - 2001	Special Assistant for Ecology	USEPA-ORD-NCEA	Washington, DC

INVITED LECTURES/SYMPOSIA:

Frithsen, J.B. 2007. The Causal Analysis / Diagnosis Decision Information System (CADDIS): Identifying the Causes of Biological Impairment in Aquatic Systems. Presentation for the USEPA Region 5 Swims meeting, January 30 - February 2, 2007, Chicago, IL.

Frithsen, J.B. 2006. Preparing for a changing climate. Presentation to the University of Massachusetts Public Forum on Climate Change, 12 April 2006. Amherst, MA.

RELEVANT PROFESSIONAL ACTIVITIES:

Member, American Association for the Advancement of Science (Environmental Fellow, 1989)

Member, Ecological Society of America,

Member, Estuarine Research Federation,

Member, Society for Risk Analysis

Member, Selection Committee for the AAAS/EPA Environmental Science and Engineering Fellowship Program

Member, NCEA, Technical Qualifications Board for the review of promotion packages for professional staff

PEER –REVIEWED PUBLICATIONS:

Ranasinghe, J.A., J.B. Frithsen, F.W. Kutz, J.F. Paul, D.E. Russell, R.A. Batiuk, J.L.

Hyland, J.Scott, and D. M. Dauer. 2002. Application of two indices of benthic community condition in Chesapeake Bay. *Envirometrics* 13:499-511.

NAME: Kate Z. Guyton

POSITION: Toxicologist

EXPERTISE: Toxicology, cancer mechanisms, mode of action

MAJOR ACTIVITIES in NCEA: Contributing toxicological expertise, particularly for cancer and mode of action considerations, to the asbestos, acrylonitrile, 1,2,3-trichloropropane, ethylene oxide, formaldehyde, trichloroethylene and tetrachloroethane risk assessment teams and serving as *Chemical Manager* for 1,2-dichloroethane. Project lead for an NCEA toxicological mode of action project team. Leading role on related projects addressing genetic polymorphisms in metabolizing enzymes and the application of adverse upstream endpoints in health risk assessment.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
The Johns Hopkins University, Baltimore, MD	BA <i>cum laude</i>	1987	Biology (French minor)
The Johns Hopkins University School of Hygiene & Public Health, Baltimore, MD	PhD	1993	Environmental Health (Toxicological Sciences)

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2005 – Present	Toxicologist	EPA/ORD/NCEA	Washington, DC
2000 – 2005	Director, Scientific Affairs	CCS Associates	Vienna, VA
1999 – 2000	Senior Scientist	CCS Associates	Vienna, VA
1997– 1999	Scientist	CCS Associates	Vienna, VA
1993– 1997	Postdoctoral Fellow	Gerontology Research Center, National Institute on Aging	Baltimore, MD

SELECTED AWARDS and HONORS:

Outstanding performance reviews from contracting organizations and CCS Associates managers (1999 – 2005);
EPA performance awards 2006, 2007.

RELEVANT PROFESSIONAL ACTIVITIES:

Diplomate, American Board of Toxicology (1998 to present)
Member, AACR (1997 to present)
Member, SOT (1997 to present)
Member, DIA (2002 to present)
Member, Board of Scientific Advisors, Bionexus Ventures (2002-2005)

Organized workshop entitled “Predicting Chemical Carcinogenicity (Moving beyond Batteries), Environmental Mutagen Society”, October 20, 2007.

Organized workshop entitled “Moving Upstream: A Workshop on Evaluating Adverse Upstream Endpoints for Improved Decision Making and Risk Assessment”, May 16-17, 2007 Berkeley, CA.

Organized poster session for the EPA Science Forum (2006) entitled “Innovations in Risk Assessment”.

Facilitated and documented an NCEA workshop on toxicological mode of action (January 2006).

Principal Investigator (2002-2005), cancer health effect biomarker contracts supporting the National Dialog on Cancer and the NCI/FDA Intra-Agency Oncology Task Force (see *Clinical Cancer Res.*, Special Section, 10(11) 2004, and 11(8):2785-808, 2005).

Task Leader (2000–2005) on a series of multi-disciplinary scientific and regulatory support contracts to the NCI, Division of Cancer Prevention, including preparation of:

- Investigational New Drug applications (INDs) and IND Annual Reports (more than 5),
- Critical summaries and Clinical Development Plans by agent (more than 60)
- Critical summaries by molecular target and/or agent category (more than 30)
- Critical reviews of preclinical and/or clinical project designs, concepts, protocols, case report forms, and informed consent documents (more than 50)
- Critical reviews of clinical targets (e.g., Familial Adenomatous Polyposis, Barrett's Esophagus) (more than 5)
- Background reports and/or technical summaries for NCI/FDA meetings (including organizing and/or attending meetings) addressing drug development issues pertaining to a particular agent, molecular target, preclinical or clinical study design, or disease setting (more than 30).

PEER-REVIEWED PUBLICATIONS:

Guyton, KZ, Barone, S, Jr., Brown, RC, Euling, SY, Jinot, J and Markis, S. 2007. Mode of Action Frameworks: A Critical Analysis. *J. Tox. Environ. Health* (in press)

Chen, C and **Guyton, KZ**. Do 2-amino-3,8-dimethylimidazo[4,5-f]quinoxaline Data Support the Conclusion of Threshold Carcinogenic Effects? Stochastic Environmental Research and Risk Assessment (SERRA), published online May 17, 2007.

Kelloff, G.J., Krohn, K.A., Larson, S.M., Weissleder, R., Mankoff, D.A., Hoffman, J.M., Link, J.M., **Guyton, K.Z.**, Eckelman, W.C., Scher, H.I., O'Shaughnessy, J., Cheson, B.D., Sigman, C.C., Tatum, J.L., Mills, G.Q., Sullivan, D.C., Woodcock, J.. The progress and promise of molecular imaging probes in oncologic drug development. *Clinical Cancer Res.* 11(22):7967-85, 2005.

Kelloff, G.J., Hoffman, J.M., Johnson, B., Scher, H.I., Siegel, B.A., Cheng, E. Cheson, B., O'Shaughnessy, J., **Guyton, K.Z.**, Mankoff, D.A., Shankar, L., Larson, S.M., Sigman, C.C., Schilsky, R.L., and Sullivan, D.C. Progress and Promise of FDG-PET Imaging for

Cancer Patient Management and Oncologic Drug Development. *Clinical Cancer Res.* 11(8):2785–808, 2005.

Kelloff, G.J., Coffey, D.S., Chabner, B.A., Dicker, A.P., **Guyton, K.Z.**, Nisen, P.D., Soule, H.R., D'Amico, A.V. Prostate-specific antigen doubling time as a surrogate marker for evaluation of oncologic drugs to treat prostate cancer. *Clinical Cancer Res.* 10(11):3927–33, 2004.

Kelloff, G.J., Schilsky, R.L., Alberts, D.S., Day, R.W., **Guyton, K.Z.**, Pearce, H.L., Peck, J.C., Phillips, R., Sigman, C.C. Colorectal adenomas: a prototype for the use of surrogate end points in the development of cancer prevention drugs. *Clinical Cancer Res.* 10(11):3908–18, 2004.

Guyton, K.Z., Kensler, T.W., and Posner, G.H. Vitamin D and analogs as cancer chemopreventives. *Nutrition Rev.*, 61(7):227–38, 2003.

Guyton, K.Z. and Kensler, T.W. Prevention of liver cancer. *Curr Oncol Rep.* 4:464–70, 2002.

Anderson, W.A., **Guyton, K.Z.**, Hiatt, R.A., Vernon, S.W., Levin, B., Hawk, E.T. Colorectal cancer screening for persons at average risk. *J. Natl. Cancer Inst.* 94: 1126–1133, 2002.

BOOK CHAPTER:

Guyton, K.Z., Kensler, T.W., and Posner, G.H. Chemopreventive efficacy of natural vitamin D and synthetic analogs. In: Kelloff, G.J., Hawk, E.T., and Sigman, C.C. (eds.) *Cancer Chemoprevention: Promising Cancer Chemopreventive Agents*. Totowa, NJ: Humana Press, 2004, pp. 259–274.

NAME: John C. Lipscomb

POSITION: Toxicologist

EXPERTISE: toxicology, metabolism, pharmacokinetics, human interindividual variability, dose response evaluation, quantitative risk assessment

MAJOR ACTIVITIES in NCEA (2 – 3 sentences): Dr Lipscomb is responsible for developing and interpreting toxicokinetic data for application in human health risk assessment. This work includes leading collaborative efforts to define and incorporate human metabolic rates into PBPK models for environmental contaminants; serving on the NCEA Pharmacokinetics Working Group; leading an EPA Risk Assessment Forum Technical Panel charged with developing guidance on replacing default values for uncertainty factors; developing and chairing educational courses; and serving as a Technical Advisor to the World Health Organization and as a member of a working group codifying “best practices” of PBPK modeling conducted for health risk assessment for the International Programme on Chemical Safety. He is also the chemical manager for the IRIS assessments being conducted for acetaldehyde and vinyl acetate.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
American Board of Toxicology	Diplomate	1995	General Toxicology
University of Arkansas for Medical Sciences	PhD	1991	Interdisciplinary Toxicology
University of Central Arkansas	MS	1985	Biology
University of Central Arkansas	BS	1983	Biology

RELEVANT PROFESSIONAL EXPERIENCE:

2005 – Present: Adjunct Assistant Professor, University of Cincinnati, Department of Allied Health Sciences. Responsible for developing and presenting lectures on toxicology, dose-response evaluation and human health risk assessment for undergraduate students. Also responsible for posting lecture files for web viewing, monitoring student progress, weekly on-line chat meetings and grading assignments and tests and assigning grades.

2000 – Present: Adjunct Assistant Professor, School of Public Health and Tropical Medicine, Department of Environmental Health Sciences, Tulane University, New Orleans, LA. Responsible for providing advice to instructors on course content regarding toxicology and risk assessment, and advising public health students on an as-needed basis.

1998 – Present: Toxicologist (1998-2001, GS-0415/13; 2001-2005, GS-0415/14; 2005-present GS-0415/15), U.S. EPA, ORD, National Center for Environmental Assessment, Cincinnati, OH. Supports the development of refined risk assessment methods including: evaluation of toxic mechanisms, dose-response assessment, exposure quantification and definition of intrinsic modifiers of toxicity. Interpret absorption, distribution, metabolism, elimination and biological activity data from environmental pollutants. Applies sound scientific judgment to develop human health risk assessments. Authors publications, reviews, methods, guidelines and documents relating the toxicological effects of and risks from environmental pollutants through internal and external collaborations. Develops and presents instructional material for human health risk assessment. Serves as contract management officer for extramurally-

funded research efforts. Assumes management/leadership roles to facilitate research, product and personnel development.

1991 – 1998. Captain (AFSC 9266-D, Toxicologist), U.S. Air Force, Armstrong Laboratory, Toxicology Division, Wright-Patterson Air Force Base Ohio. Scientific duties included those of a primary investigator. Responsible for training technicians and developing protocols for chemical metabolism; initiating and conducting studies aimed at comparing xenobiotic metabolism between humans and test animals; and establishing the Metabolism Section of the Division. Resulted in improved understanding of human interindividual variability of metabolic capacity, and the demonstration that those differences may be tempered by rate-limiting physiological processes resulting in chemical disposition differences that were less than what may have been anticipated.

1984 – 1991. Biologist GS 0405/05 - 09, US Food and Drug Administration, National Center for Toxicological Research, Jefferson, AR. Part-time position concurrent with graduate school. Initial activities included conducting whole animal PK studies in rats and mice, technical procedures included in vitro chemical and enzyme assays, cannulation procedures for sample collection. With promotions was granted Principle Investigator status; served as PI on three FDA studies aimed at determining the transplacental disposition and enzyme inhibitory effects of a developmental neurotoxicant (trimethyltin). Responsible for data generation, interpretation and presentation of findings at national meetings and in journal publications.

SELECTED AWARDS and HONORS:

- US Environmental Protection Agency, Office of Research and Development Teamwork Award for Multidisciplinary Approach to Develop and Apply Toxicokinetic Measures in Risk Assessment, 2006.
- Human and Ecological Risk Assessment (journal), Human Risk Assessment paper of the year, "Evaluating the Relationship between Variance in Enzyme Expression and Toxicant Concentration in Health Risk Assessment", HERA, 10:39-55, 2004.
- US Environmental Protection Agency, Bronze Medal for Health Risk Assessment for Boron and Compounds, 2004.

INVITED LECTURES/SYMPOSIA (limit to 5 from last 5 years [2002-present]):

- International Congress of Toxicology, Continuing Education Lecture, "*Use of Compound Specific and General Kinetic Data in Human Risk Assessment*" in "Development and Interpretation of Toxicokinetic Data for Risk and Safety Assessment", July, 2007.
- Society of Toxicology, Lecture, "*Application of Mode of Action and Dose-Response Information in a Chemical Mixtures Risk Assessment*", in a Workshop session on Mode of Action, Charlotte, NC, March, 2007.
- Society for Risk Analysis, Continuing Education Course, Chemical Specific Adjustment Factors (L Haber, B Meek, J Lipscomb course chairs and lecturers), Baltimore, MD, December, 2006.
- American College of Toxicology Continuing Education Lecture, "*Toxicokinetics - Approaches in*

Chemical Risk Assessment", in "Toxicokinetics and Physiologically Based Toxicokinetics in Pharmaceutical and Chemical Safety Assessment", Palm Springs, California, November, 2004.

- Society of Toxicology Continuing Education Lecture, "*The Multiple Roles of Pharmacokinetics*", in "Choice and Application of Classical, Population, or Physiologically Based Pharmacokinetics for Chemical Assessment and Pharmaceutical Development", Salt Lake City, UT, March, 2003.

RELEVANT PROFESSIONAL ACTIVITIES (e.g. Positions on Societies/Journals, Committees, Workshop organization, etc. from last 5 years [2002- present]):

International Programme on Chemical Safety, Steering Committee on project Physiologically Based Pharmacokinetic Modeling; group tasked with developing guidance on best practices for risk assessment. Invited participate in discussions on in vitro to in vivo extrapolation procedures for metabolic rate constants. International Workshop on the Development of Good Modeling Practice for PBPK Models, April 25-28, 2007, Chania, Crete, Greece. Also, serving as a Temporary Advisor to the WHO/IPCS on a writing panel to draft IPCS guidance on Best Practices for PBPK modeling conducted for Risk Assessment.

US Environmental Protection Agency, Risk Assessment Forum, co-leader of Technical Panel charged with drafting guidance on Replacing Default Uncertainty Factors with Data-Derived Uncertainty Factors (2006-2008)

U.S. EPA, ORD/NCEA Working group on Physiologically Based Pharmacokinetic Models for Risk Assessment (2004-present)

Society of Toxicology:

Continuing Education Committee (2007-2010).
Councilor, Risk Assessment Specialty Section (2006-2008).
Member Services Strategy Committee (2006-2007).
Past President, Ohio Valley Chapter (2002).

Society for Risk Analysis:

Past President, Ohio Chapter (2005).
Past President, Dose-Response Specialty Group (2004).

American Board of Toxicology, Board of Directors (2006-2009).

Associate Editor, *Toxicological Sciences* (2005 – present)

Editorial Board, *Toxicology Mechanisms and Methods* (2005 – present)

Ad hoc reviewer for *Inhalation Toxicology*, *Biochemical Pharmacology*, *Environmental Health Perspectives*, *Ecotoxicology and Environmental Safety*, *Neurotoxicology*, *Regulatory Toxicology and Pharmacology*, *Toxicology and Applied Pharmacology* and *Risk Analysis*.

Co-Chair of Annual Toxicology and Risk Assessment Conference, West Chester, OH, April, 2004. Responsibilities included logistical arrangements and selection of proposed continuing education courses, plenary speakers and scientific symposia for this 4-day meeting (attended by approximately 300 scientists).

Steering Committee, Annual Toxicology and Risk Assessment Conference, (2002 - Present).

National Institute for Occupational Safety and Health, Alice Hamilton Award reviewer (2004 – 2005).

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles

Barter Z.E., Bayliss, M.K., Beaune, P.H., Boobis, A.R., Carlile, D.J., Edwards, R.J., Houston, J.B., Lake, B.G., **Lipscomb, J.C.**, Pelkonen, O.R., Tucker, G.T., and Rostami-Hodjegan, A. Scaling factors for the extrapolation of *in vivo* metabolic drug clearance from *in vitro* data: Reaching a consensus on values of human microsomal protein and hepatocellularity per gram of liver. *Current Drug Metabolism* **8**, 33-45 (2007).

Chiu, W.A., Chen, C., Hogan, K., **Lipscomb, J.C.**, Scott, Cs, Subramaniam, R. High-To-Low Dose Extrapolation: Issues and Approaches. *Human and Ecological Risk Assessment* **13**, 46-51 (2007).

Chiu, W.A., Barton, H.A., Dewoskin, R.S., Schlosser, P, Thompson, C.M. Sonawane, **B., Lipscomb, J.C.** And Krishnan, K. Evaluation of Physiologically Based Pharmacokinetic Models For Use In Risk Assessment. *Journal Of Applied Toxicology* **27**, 218-237 (2007).

Lambert, J.C. and **Lipscomb, J.C.** Mode of Action as a Determining Factor in Human Health Risk Assessment of Chemical Mixtures. *Regulatory Toxicology and Pharmacology* E-pub ahead of print, doi: 10.1016/j.yrtph.2007.07-002 (2007).

Lipscomb, J.C. Incorporating Toxicokinetic Data in Uncertainty Factors for Noncancer Risk Assessment. Submitted to *Toxicological Sciences*.

Mahle, D.A., Gearhart, J.M., Grigsby, C., Mattie, D.R., Barton, H.A., **Lipscomb, J.C.**, and Cook, R.S. Age-Dependent Partition Coefficients for a Mixture of Volatile Organic Solvents in Sprague-Dawley Rats and Humans. In press, *Journal of Toxicology and Environmental Health (Part A)* (2007).

Mazur, C.S., Kenneke, J.F., Tebes-Stevens, C., Okino, M.S., **Lipscomb, J.C.** In Vitro Metabolism of the Fungicide and Environmental Contaminant Trans-Bromuconazole and Implications for Risk Assessment. *Journal of Toxicology and Environmental Health* **70**,1241-1250 (2007).

Rodriguez, C.E., Mahle, D.A, Gearhart, J.M., Mattie, D.R, **Lipscomb, J.C.**, Cook, R.S. and Barton, H.A. Predicting Age-Dependent Pharmacokinetics of Six Volatile Organic Compounds in the Rat Utilizing Physiologically-Based Pharmacokinetic Modeling. *Toxicological Sciences* **98**, 43-56 (2007).

Thompson, C.M., Sonawane, B., Barton, H.A., Dewoskin, R.S., **Lipscomb, J.C.**, Chiu, W.A., Krishnan, K.K. Approaches for Applications Of Physiologically Based Pharmacokinetic Models In Risk Assessment. In Press, *Journal Of Toxicology And Environmental Health* (2007).

Chiu, W.A., Okino, M.S., **Lipscomb, J.C.**, Evans, M.V. Issues in the pharmacokinetics of trichloroethylene and its metabolites. *Environmental Health Perspectives*. **114**, 1450-1456 (2006).

Beliveau, M., **Lipscomb, J.**, Tardif, R and Krishnan, K. Quantitative structure-property relationships for interspecies extrapolation of the inhalation pharmacokinetics of organic chemicals. *Chemical Research in Toxicology* **18**, 475-485 (2005).

Gentry, PR, Haber, LT, McDonald, TB, Zhao, Q, Covington, T, Nance, P, Clewell, HJ III, **Lipscomb, JC**, Barton, HA. Data for Physiologically-Based Pharmacokinetic Modeling in Neonatal Animals: Physiological Parameters in Mice and Sprague-Dawley Rats. *Journal of Children's Health* **2**, 363-411 (2005).

Teuschler, L.K., Rice, G.E., Wilkes, C.R., **Lipscomb, J.C.**, and Power, F.W. Cumulative Risk Assessment Method to Evaluate Multiple-Route Exposures to Chemical Mixtures in Drinking Water. *Journal of Toxicology and Environmental Health (Part A)* **67**, 755-777 (2004).

Lipscomb, J.C. , Meek, E., Krishnan, K., Kedderis, G.L., Clewell, H and Haber, L.T. Incorporation of Pharmacokinetic and Pharmacodynamic Data into Risk Assessments. *Toxicology Mechanisms and Methods* **14**, 145-158 (2004).

Lipscomb, J.C., Barton, H., Tornero-Velez, R., Evans, M.V., Alcasey, S., Snawder, J.E., and Laskey, J. The Metabolic Rate Constants and Specific Activity of Human and Rat Cytochrome P450 2E1 Toward Chloroform. *Journal of Toxicology and Environmental Health (Part A)* **67**, 537-553 (2004).

Lipscomb, J.C. Evaluating the Relationship Between Variance in Enzyme Expression and Toxicant Concentration in Health Risk Assessment *Human and Ecological Risk Assessment* **10**, 39-55 (2004).

Kedderis, G.L. and **Lipscomb, J.C.** Application of *in Vitro* Biotransformation Data and Pharmacokinetic Modeling to Risk Assessment *Toxicology and Industrial Health* **17**, 315-321 (2003).

Lipscomb, J.C. How Differences in Enzyme Expression Can Translate into Pharmacokinetic Variance and Susceptibility to Risk. *Journal of Children's Health* **1**, 189-202 (2003).

Lipscomb, J.C., Teuschler, L.K., Swartout, J.C., Striley, C.A.F., and Snawder, J.E. Variance of Microsomal Protein and Cytochrome P450 2E1 and 3A Forms in Adult Human Liver. *Toxicology Mechanisms and Methods* **13**, 45-51 (2003).

Lipscomb, J.C., Teuschler, L.K., Swartout, J., Popken, D., Cox, T., and Kedderis, G.L. The Impact of Cytochrome P450 2E1-dependent Metabolic Variance on a Risk Relevant Pharmacokinetic Outcome in Humans. *Risk Analysis* **23**, 1221-1238 (2003).

Lipscomb, J.C. and Kedderis, G.L. Incorporating Human Interindividual Biotransformation Variance in Health Risk Assessment. *Science of the Total Environment* **288**, 13-21 (2002).

Book/Book Chapters

Lipscomb, J.C. and Ohanian, E.V. (Editors). *Toxicokinetics and Risk Assessment* (ISBN 0-8493-3722-4; Informa Healthcare Publishers, New York) is a 15-chapter, 360 page book that describes the principles and practice of developing and interpreting quantitative toxicokinetic data to refine dose extrapolation in human health risk assessment. (2007).

DeWoskin R.S., **Lipscomb J.C.**, Thompson C. Pharmacokinetic and Physiologically Based Pharmacokinetic Models in IRIS assessments. In: *Toxicokinetics and Risk Assessment*. J.C. Lipscomb and E.V. Ohanian EV eds., Informa Healthcare Publishers, New York, NY. 301-348 (2007).

Lipscomb, J.C. Toxicokinetics for Drinking Water Risk Assessment. In: *Drinking Water Risk Assessment*, B. Howd, ed. John Wiley and Sons, Hoboken, New Jersey. 91-122 (2007).

Robinson, P.J., Gearhart, J.M., Mahle, D.A., et al. Considerations of Design and Data when Developing Physiologically-Based Pharmacokinetic Models. In: *Toxicokinetics and Risk Assessment*. **J.C. Lipscomb** and E.V. Ohanian EV eds., Informa Healthcare Publishers, New York, NY. 141-166 (2007).

Lipscomb, J.C., Lambert, J.C., and Mumtaz, M. The Toxicity and Risk of Chemical Mixtures. In: *Computational Toxicology: Risk Assessment for Pharmaceutical and Environmental Chemicals* S. Ekins, ed., John Wiley & Sons, New York. 601-625 (2007).

Agency Documents (including final Assessments)

U.S.EPA. Incorporating Toxicokinetic Data in Uncertainty Factors for Noncancer Risk Assessment. NCEA-C-1669 ORD/NCEA, Cincinnati, OH (2006)

U.S.EPA. Approaches for the Application of Physiologically Based Pharmacokinetic (PBPK) Models and Supporting Data in Risk Assessment. EPA/600/R-05/043A ORD/NCEA, Washington, DC, (2006)

U.S.EPA. Exposures and Internal Doses of Trihalomethanes in Humans: Multi-Route Contributions from Drinking Water. EPA/R-06/087 ORD/NCEA, Cincinnati, OH (2006).

U.S.EPA. Application of PBPK Modeling to Examine Tissue Dosimetry in Chronic Disease: Examination of Feasibility. EPA/600/Q-06/001 ORD/NCEA, Cincinnati, OH (2005).

U.S.EPA. Use of Physiologically Based Pharmacokinetic Models to Quantify the Impact of Human Age and Interindividual Differences in Physiology and Biochemistry Pertinent to Risk: Final Report for Cooperative Agreement. EPA/600/R-06-014A ORD/NCEA, Cincinnati, OH (2005)

U.S.EPA. Toxicological Review and Integrated Risk Information System Summary for Boron and Compounds. EPA/635/04/052 ORD/NCEA, Cincinnati, OH (2004)

U.S.EPA. Developing Relative Potency Factors for Pesticide Mixtures: Biostatistical Analyses of Joint Dose-Response. EPA/600/R-03/052 ORD/NCEA, Cincinnati, OH (2003)

U.S.EPA. The Feasibility of Performing Cumulative Risk Assessments for Mixtures of Disinfection By-Product Mixtures. NCEA-C-1257 ORD, NCEA, Cincinnati, OH (2002)

NAME: Jacqueline Moya

POSITION TITLE: Environmental Engineer

EXPERTISE: Exposure factors, exposure assessment, children's exposures

MAJOR ACTIVITIES in NCEA:

Develop, manage, and direct a program to update Exposure Factors Handbook and Child-Specific Exposure Factors Handbook. Identify data gaps and conduct research in the area of human exposure factors. Lead an intra Agency advisory group to identify exposure factors data gaps, propose research, and set priorities.

EDUCATION/TRAINING

Institution	Degree	Year	Field of Study
University of Puerto Rico, Mayaguez Campus	BS	1984	Chemical Engineering
George Washington University		1988	Graduate courses in: Biostatistics
University of Maryland		1990	Environmental Policy
		1990	Quantitative Methods to Political Analysis
		1991	Microeconomics

RELEVANT PROFESSIONAL EXPERIENCE:

1986- present U.S. EPA, Office of Research and Development

6/93-8/93 U.S. EPA, Office of Research and Development, acting branch chief

7/89-8/89 U.S. EPA, Office of Toxic Substances – rotational assignment

1984-1986 U.S. EPA, Office of Solid Waste and Emergency Response

SELECTED AWARDS AND HONORS:

U.S. EPA Gold Medal for Childhood Exposures Guidance Team (2007)

U.S. EPA Bronze Medal for Promoting Strong Science (2004)

U.S. EPA Bronze Medal for contributions to the Voluntary Children's Chemical Evaluation Program (2003)

INVITED LECTURES/SYMPOSIA:

Moya, J. Revisions to the Child-Specific Exposure Factors Handbook. Federal-State Toxicology and Risk Analysis Committee. December 13-15, 2006, Clearwater, FL.

Moya, J., Schuda, L., Sandford, J., Lordo, R. Analysis of Age-Specific Ventilation Rates Using Basal Metabolic Rates and Activity Pattern Data. Society for Risk Analysis Annual Meeting. December 3-5, 2006, Baltimore, MD.

Moya, J., Itkin, C., Rogers, J., Clickner, R., Selevan, S. Fish consumption rates for populations in Connecticut, Florida, Minnesota, and North Dakota. Society for Risk Analysis Annual Meeting, December 4-7, 2005, Orlando, FL.

Moya, J., Cohen-Hubal, E., Selevan, S., Brown, R. A life-stage approach to children environmental exposures. Presented at the International Symposium on Children's Environmental Health, Tokyo, Japan, February 2005

Moya, J. Importance of education. Presented at the “Step-Up-Now” (SUN) scholarship awards for Latino and Native American students at TC Williams High School. Key note speaker. Alexandria, VA. June, 2003.

RELEVANT PROFESSIONAL ACTIVITIES:

- Member, Society for Risk Analysis
- Serve as peer reviewer for various journals
- EPA Risk Assessment Forum Age Grouping Guidance Workgroup (2000-2005)
- Children’s Risk Framework Workgroup (2004-2006)
- Susceptibility in Risk Assessment (present)
- Exposure Factors Advisory Group (present, chair)
- Assisting with Agency’s Spanish Access to Science Initiative
- Workshop on Issues Related to the Development of an Exposures Factors Handbook for the Aging. Proposed, assisted organizing, speaker. February 14-15, 2007.
- Soil Ingestion and Mouthing Behavior Colloquium. Proposed, organized, coordinated, and chaired the colloquium. Washington DC, May 2005
- Exposure Factors Program Colloquium. Proposed, organized, coordinated and chaired the colloquium. Washington DC, June 2004.

PUBLICATIONS :

Peer Review Journal Articles

Firestone, M., **Moya, J.**, Cohen-Hubal, E., Zartarian, V., Xue, J. 2007. Identifying Age Groups for Exposure Assessments and Monitoring. Risk Analysis. Vol 27 No 2. pp. 411-420.

Xue, J., Zartarian, V., **Moya, J.**, Freeman, N. Beamer, P., Black, K., Tulve, N., Shalat, S. A Meta Analysis of Children’s Hand-to-Mouth Frequency Data for Estimating Non-Dietary Ingestion Exposures. Accepted for publication. Risk Analysis 2007

Barone, S.; Brown R.C.; Euling, S.; Cohen-Hubal E.; Kimmel, C.A.; **Moya, J.**; Selevan, S.G.; Sonawane, B.; Thomas, T.; Thompson, C. 2006. Vision General de la Evaluacion del Riesgo en Salud Infantil Empleando un Enfoque for Etapas de Desarrollo. Acta Toxicol. Argent. Vol. 14, Suplemento: pp. 7-10.

Moya J. 2004. Overview of fish consumption rates in the United States. Journal of Human and Ecological Risk Assessment. Vol. 10. No. 6 pp. 1195-1211. (invited)

Moya J, Bearer CF, Etzel RA. 2004. Children’s behavior and physiology and how it affects exposure to environmental contaminants. Pediatrics. Vol 113, No. 4, April 2004; pp. 996-1006. (invited)

Tulve NS, Suggs JC, McCurdy T, Cohen-Hubal EA, **Moya J.** 2003. Frequency of mouthing behavior in young children. Journal of Exposure Analysis and Environmental Epidemiology 12, pp. 259-264.

Moya J and Phillips L. 2002. Overview of the use of the U.S. EPA exposure factors handbook. International Journal Hygiene Environmental Health 205, pp. 155-159. (invited)

Other Government Documents

U.S. EPA 2007a. (PI and contributing author). Analysis of fat intake based on U.S. Department of Agriculture continuing survey of food intake by individuals (CSFII) 1994-96, 98. Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC EPA/600/R-05/021

U.S. EPA 2007b. (PI and contributing author) Analysis of total food intake based on U.S. Department of Agriculture continuing survey of food intake by individuals (CSFII) 1994-96, 98. Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC EPA/600/R-05/062

U.S. EPA 2006a. (PI and contributing author). Child-Specific Exposure Factors Handbook. External Review Draft. Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC. EPA/600/R-06/096A.

U.S. EPA 2006b. (contributing author) A Framework for Assessing Health Risks of Environmental Exposures to Children. Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC. EPA/600/R-05/093F.

U.S. EPA 2005a. (PI and contributing author in the user's guide) Water emission model: emissions to indoor air from household water use sources – computer model. Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC (external review draft software)

U.S. EPA 2005b. Firestone, M., Hubal, E., Moya, J., Zartarian, V. Selecting age groups for monitoring and assessing childhood exposures to environmental contaminants. Risk Assessment Forum, Office of Research and Development, Washington, D.C. EPA/630/P-03/003A.

U.S. EPA 2003a. (PI and contributing author). CSFII Analysis of Food Intake Distributions. U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC, EPA/600/R-03/029, 2003.

U.S. EPA 2003b. (PI and contributing author). Example exposure scenarios. National Center for Environmental Assessment, Washington, DC; EPA/600/R-03/036. Available from: National Information Service, Springfield, VA; PB2003-103280 and at <http://www.epa.gov/ncea>

U.S. EPA 2002. (PI and contributing author). Child-Specific Exposure Factors Handbook (Interim Report). Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC, EPA-600-P-00-002B.

NAME: John Schaum

POSITION: Environmental Engineer

EXPERTISE: Exposure assessment, dermal absorption, PBTs

MAJOR ACTIVITIES in NCEA: Conducting chemical specific exposure assessments, developing dermal absorption methods and consulting with programs/regions on exposure issues.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Colorado Boulder, CO	BS	1972	Chemical Engineering
George Washington University Washington, DC	MS	1987	Environmental Engineering
Professional Engineer's License		1987	

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2001 – Present	Environmental Engineer	EPA/ORD/NCEA	Washington, DC
1988 – 2001	Branch Chief	EPA/ORD/NCEA	Washington, DC

SELECTED AWARDS and HONORS:

Administrator's Katrina-Rita Award for Excellence, 2006

OSWER's Scientific Achievement Award, 2005

US EPA Bronze Medal: 2005

INVITED LECTURES/SYMPOSIA:

RELEVANT PROFESSIONAL ACTIVITIES:

International Society of Exposure Analysis (Member 1997 – present)
Contaminants of Potential Concern (COPC) Committee of the World Trade Center
Indoor Air Taskforce Working Group (Member 2001-2003)
Planning committee for Occupational and Environmental Exposures of Skin to
Chemicals (OEESC) meeting, Golden, Colorado in June 2007 (Member 2006-2007)
Risk Assessment Task Force (Member 2003)
Superfund Dermal Workgroup (Member 2000 - present)

PEER-REVIEWED PUBLICATIONS:

Peer Review Journal Articles

J Ferrario, C Byrne, and **J Schaum**. 2006. Concentrations of polychlorinated dibenzo-*p*-dioxins in processed ball clay from the United States. Chemosphere.

M.B. Shoaf, J.H. Shirai, G. Kedan, **J. Schaum**, J.C. Kissel, 2005a. Child Dermal Sediment Loads Following Play in a Tide Flat. Journal of Exposure Analysis and Environmental Epidemiology

M. B. Shoaf, J. H. Shirai, G. Kedan, **J. Schaum**, J. C. Kissel, 2005b. Dermal Sediment Loads on Adults Following Clam Digging in Tide Flats. *Journal of Soil and Sediment Contamination*

J Schaum, Schuda L, Wu C, Sears R, Ferrario J, Andrews K. 2003. A national survey of persistent, bioaccumulative, and toxic (PBT) pollutants in the United States milk supply. *Journal of Exposure Analysis and Environmental Epidemiology*. May, 2003. V. 13, No. 3, p. 177-186.

Agency Documents:

U.S. EPA, 2007. Pilot survey of levels of polychlorinated-p-dioxins, polychlorinated dibenzofurans, polychlorinated biphenyls and mercury in rural soils of the United States. EPA/600/R-05/048F.

U.S. EPA. Child-Specific Exposure Factors Handbook 2006 (External Review Draft). U.S. Environmental Protection Agency, Washington, D.C., EPA/600/R-06/096A.

J Schaum, L Hall and S Perlin, 2005. Genesee Power Station Impact Assessment. Internal EPA Report - Final. Washington, DC.

U.S. EPA, 2003. World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks. Prepared by the Contaminants of Potential Concern (COPC) Committee of the World Trade Center Indoor Air Taskforce Working Group.

U.S. EPA, 2003. Exposure and Human Health Reassessment of 2,3,7,8 TCDD and Related Compounds - NAS Review Draft. Part 1: Estimating Exposure to Dioxin-Like Compounds. December 2003. EPA/600/P-00/001Bc.

NAME: Paul M. Schlosser **POSITION:** Environmental Health Scientist

EXPERTISE: Biologically-based modeling and risk analysis (including PBPK)

MAJOR ACTIVITIES in NCEA: Co-leader for the PK Working Group; review of PBPK models and other computational models proposed for use in assessments; providing guidance to chemical managers and consultation with contractors on PBPK model development and implementation; development of computational framework for Bayesian analysis of PBPK models in R (open source) software.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
University of Rochester, Rochester, New York	Ph.D.	1988	Chemical Engineering
University of Toronto, Toronto, Ontario, Canada	M.A.Sc.	1984	Chemical Engineering
University of Rochester, Rochester, New York	B.S.	1982	Chemical Engineering

RELEVANT PROFESSIONAL EXPERIENCE:

2004-present Environmental Health Scientist, U.S. Environmental Protection Agency, National Center for Environmental Assessment, Washington, DC

2004 Senior Research Investigator, CIIT Centers for Health Research, RTP, NC

2001-2004 Scientist II, CIIT Centers for Health Research, Research Triangle Park, NC

1991-2001 Scientist I, Chemical Industry Institute of Toxicology, Research Triangle Park, NC

1988-1991 Postdoctoral Research Fellow, California Institute of Technology, Pasadena, CA

1984-1988 Graduate Research Assistant, University of Rochester, Rochester, NY

1982-1983 Graduate Research Assistant, University of Toronto, Toronto, Canada

SELECTED AWARDS and HONORS:

U.S. EPA, Office of Research and Development (ORD) Bronze Award, *The ORD PBPK Team is recognized for preparing Approaches for the Application of Physiologically Based Pharmacokinetic Models and Supporting Data in Risk Assessment*, 2006

Risk Assessment Specialty Section, Society of Toxicology (SOT), award for outstanding published paper demonstrating an application of risk assessment (as co-author), 2004

INVITED LECTURES/SYMPOSIA:

PBPK Modeling of Genistein. **P.M. Schlosser**, M.G. Zager, and H.T. Tran. DuPont Stine-Haskell Laboratories, Newark, DE, August 30, 2002.

Modeling estrogen dose-response effects on the menstrual cycle. **P.M. Schlosser**, L. Harris Clark, and J.F. Selgrade. SIAM Conference on the Life Sciences, Portland, OR, July 11-14, 2004.

RELEVANT PROFESSIONAL ACTIVITIES:

North Carolina Chapter, Society of Toxicology: Secretary/Treasurer, 2002-03.

Dose-Response Specialty Group, Society of Risk Analysis: Past-president, 2002; Trustee-at-Large, 2003-04.

Research Triangle Chapter – Society of Risk Analysis: President, 2001-02; member, board of directors, 2003.

Peer reviewer: Review of U. S. Environmental Protection Agency's draft Framework for Cumulative Risk Assessment, Washington, DC, June 4-5, 2002

Editorial Board, Inhalation Toxicology, 1998-2003

Workshop organizer, Importance and Relevance of Rodent Nasal Lesions for Assessing Human Health Risk – "What the Nose Knows", CIIT Centers for Health Research, Research Triangle Park, NC, Sept. 4-6, 2002

Workshop organizer, Emerging Contaminants in the Aquatic Environment – Risk & Regulatory Perspectives, North Carolina State University, Raleigh, NC, Oct. 3-4, 2002

Chair/organizer, "Dose-Response Relationships for Endocrine Effects," SRA Annual Meeting, New Orleans, LA, Dec. 8-11, 2002

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles, e.g.

Clark, L.H., **Schlosser, P.M.**, and Selgrade, J.F. Multiple stable periodic solutions in a model for hormonal control of the menstrual cycle. *Bulletin of Mathematical Biology*, 65:157-173, 2003.

Schlosser, P.M., Lilly, P.D., Conolly, R.B., Janszen, D.B., and Kimbell, J.S. Benchmark dose risk assessment for formaldehyde using airflow modeling and a single-compartment, DNA-protein cross-link dosimetry model to estimate human equivalent doses. *Risk Analysis*, 23:473-487, 2003.

Georgieva, A.V., Kimbell, J.S., and **Schlosser, P.M.** A distributed-parameter model for formaldehyde uptake and disposition in the rat nasal lining. *Inhalation Toxicology*, 15:1435-1463, 2003.

Banks, H.T., Cole, C.E., **Schlosser, P.M.**, and Tran, H.T. Modeling and optimal regulation of erythropoiesis subject to benzene intoxication. *Mathematical Biosciences and Engineering*, 1:15-48, 2004.

Conolly, R.B., Kimbell, J.S., Janszen, D., **Schlosser, P.M.**, Kalisak, D., Preston, J., and Miller, F. Human respiratory tract cancer risks of inhaled formaldehyde: Dose-response predictions derived from biologically-motivated computational modeling of a combined rodent and human dataset. *Toxicological Sciences*, 82:279-296, 2004.

- Schlosser, P.M.**, Borghoff, S.J., Coldham, N.G., David, J.A., and Ghosh, S.K. Physiologically based pharmacokinetic modeling of genistein in rats, Part I: Model development. *Risk Analysis*, 26:483-500, 2006.
- Yokley, K., Tran, H.T., Pekari, K., Rappaport, S., Riihimaki, V., Rothman, N., Waidyanatha, S., and **Schlosser, P.M.** Physiologically based pharmacokinetic modeling of benzene in humans: A Bayesian approach. *Risk Analysis*, 26:925-943, 2006.
- Chiu, W., Barton, H., DeWoskin, R., **Schlosser, P.**, Thompson, C., Sonawane, B., Lipscomb, J., and Krishnan, K. Evaluation of physiologically based pharmacokinetic models for use in risk assessment. *Journal of Applied Toxicology*, 27:218-237, 2007.
- Subramaniam, R.P., Crump, K.S., Van Landingham, C., White, P., Chen, C., and Schlosser, P. Uncertainties in the CIIT Model for Formaldehyde-Induced Carcinogenicity in the Rat: A Limited Sensitivity Analysis – I. *Risk Analysis* (in press), 2007.

Book/Book Chapters, e.g.

DeWoskin, R.S., Lipscomb, J.L., Thompson, C., Chiu, W.A., Schlosser, P., Smallwood, C., Swartout, J., Teuschler, L., and Marcus, A. Pharmacokinetic/physiologically based pharmacokinetic models in Integrated Risk Information System assessments. In: *Toxicokinetics and Risk Assessment*. J.C. Lipscomb and E.V. Ohanian, eds. Informa Healthcare, New York. 301-348, (2006).

NAME: Babasaheb Sonawane

POSITION: Supervisory
Interdisciplinary Toxicologist

EXPERTISE: Management of scientific issues related to health risk assessment

MAJOR ACTIVITIES in NCEA: Health risk assessment of environmental agents; develop and promote methods/models and their application in risk evaluation.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Missouri, Columbia, Missouri	Ph.D.	1967-	Entomology/Toxicology
University of Pune, Pune, India	M.S.	1971	Agricultural Entomology
University of Pune, Pune, India	B.S.	1963-1965	Agriculture
University of Pune, Pune, India		1958-1962	

RELEVANT PROFESSIONAL EXPERIENCE:

1995-Present Supervisory Interdisciplinary Toxicologist, Effects Identification and Characterization Group, National Center for Environmental Assessment (NCEA) Washington Division, ORD, U.S. EPA

1999-2000 Acting Director, NCEA-Washington Division, ORD, U.S. EPA

1990-1995 Chief, Reproductive and Developmental Toxicology Branch, Human Health Assessment Group, Office of Health and Environmental Assessment, ORD, U.S. EPA, Washington, DC.

4-7/1990 Acting Deputy Director, Environmental Criteria and Assessment Office, Office of Health and Environmental Assessment, ORD, U.S. EPA Cincinnati, OH.

9-12/1989 Acting Branch Chief, Reproductive and Developmental Toxicology Branch, Human Health Assessment Group, Office of Health and Environmental Assessment, ORD, U.S. EPA. Washington, DC

1985-1990 Biologist, Reproductive Effects Assessment Group, Office of Health and Environmental Assessment, ORD, U.S. EPA , Washington, DC.

1983-1985 Senior Staff Fellow, Division of Toxicology, Center for Veterinary Medicine, Food and Drug Administration, Rockville, MD.

SELECTED AWARDS and HONORS:

- Bronze Medal – Approaches for Application of Physiologically-Based Pharmacokinetic Models and Supporting Data in Risk Assessment (2006)
- Member of Inter-Agency Coordination Committee - National Children Study ORD/ EPA (2006)
- Appointed as a Member of the ORD/ EPA Honor Awards Committee (2005 to Present)
- Science and Technology Achievement Award – Level II for publication co-authored in Toxicological Sciences 66 (2): 185-200, 2002.

INVITED LECTURES/SYMPOSIA:

- Fourteenth Final Review Board Meeting for Concise International Chemical Assessment Documents. WHO-IPCS. Helsinki, Finland (2007)
- Twenty-second International Neurotoxicology Conference –Environment and Neurodevelopmental Disorders, Research Triangle Park, NC (2005)

- Thirteenth Final Review Board Meeting for Concise International Chemical Assessment Documents and Workshop of Indian Priorities. World Health Organization – IPCS, Nagpur, India (2005)
- WHO International Conference: Healthy Environments, Healthy Children. International Workshop: Advances in the Use of Biomarkers in Children. Buenos Aires, Argentina (2005)
- EPA/CDC Research Group Meeting on Interpretation of Immunotoxicity Data for Children's Risk Assessment, Shepherdstown, WV (2004)
- The Second Meeting of the Indo-U.S. Joint Working Groups – Environmental and Occupational Health – Organized by the CDC/HHS (2004)
- International Conference on Recent Advances in Benzene Toxicity Research: Munich, Germany (2004)
- Evolving Genetics and Genomics Conference: Human Genetic and Nongenetic Variation: Implications for Risk Assessment: Bangkok, Thailand (2004)
- Workshop on Human Milk Surveillance and Biomonitoring for Environmental Chemicals in the United States – organized by the Hershey Medical Center, Hershey, PA (2004)
- New York Academy of Medicine: “Early Origins of Neurodegenerative Diseases.” (2003)
- Workshop on Dose-Dependent Transitions in Mechanisms of Toxicity organized by ILSI-HESI, Washington, DC (2003)
- International Society of Risk Analysis World Congress, Children's Environmental Health Issues: Brussels, Belgium (2003)
- WHO Conference on Environmental Threats to the Health of Children: Hazards and Vulnerability: Bangkok, Thailand (2002)
- Member of the U.S. delegation led by Hon. Christine Todd-Whitman, Administrator, U.S. EPA at Indo-U.S. Conference on Environmental Health in India: Scientific Framework and Regulatory Metric to Evaluate Health Risks of Chemicals in Hazardous Waste supported by the Southeast Region of WHO and U.S. EPA (2002)

RELEVANT PROFESSIONAL ACTIVITIES:

- Served as member, NCEA's Human Health Risk Assessment review by Office of Management and Budget (OMB) Performance Assessment and Rating Tool (2006)
- Served as member, ORD's Human Health Research review by Board of Scientific Counselors (2005)
- Contributed to the ORD's Human Health Research and the National Center for Environmental Assessment Human Health Risk Assessment Multi-Year Plan (2005)

PEER-REVIEWED PUBLICATIONS:

Peer Reviewed Journal Articles

1. Ginsberg G, Hattis D, Russ A, **Sonawane B.** (2005) Mini-Monograph: Pharmacokinetic and Pharmacodynamic Factors that can Affect Sensitivity to Neurotoxic Sequelae in the elderly. Environ Health Perspectives. 113(9):1243-9.
2. Brown RC, Lockwood AH, **Sonawane BR.** (2005) Mini-Monograph: Neurodegenerative diseases: Environmental Risk Factors – An Overview. Environ Health Perspectives. 113(9):1250-6.

4. Landrigan PJ, **Sonawane B**, Butler RN, Trasande L, Callan R, Droller D (2005). Mini-Monograph: Early Environmental Origins of Neurodegenerative Disease in Later Life. *Environ Health Perspectives*. 113(9):1230-3.
5. Lakind JS, Brent RL, Dourson ML, Kacew S, Koren G, **Sonawane B**, Tarzian AJ, Uhl K. (2005) Human milk biomonitoring data interpretation and risk assessment issues. *Journal of Toxicology and Environmental Health*.68 (20):1713-69.
6. Bostwick DG, Burke HB, Djakiew D, Euling S, Ho SM, Landolph J, Morrison H, **Sonawane B**, Shifflett T, Waters DJ, Timms B. (2004). Human prostate cancer risk factors. *Cancer* 101 (10 suppl): 2371-2490.
7. Daston G, Faustman E, Ginsberg G, Fenner-Crisp P, Olin S, **Sonawane B**, Bruckner J, Breslin W, McLaughlin TJ. (2004). A framework for assessing risks to children from exposure to environmental agents. *Environ.Health Perspect* 112:238-256.
8. Ginsberg G, Hattis D, Russ A, **Sonawane B**. (2004). Physiologically based pharmacokinetic (PBPK) modeling of caffeine and theophylline in neonates and adults: implications for assessing children's risks from environmental agents. *J.Toxicol.Environ.Health A* 67:297-329.
9. Ginsberg G, Hattis D, Miller R, **Sonawane B**. (2004). Pediatric pharmacokinetic data: implications for environmental risk assessment for children. *Pediatrics* 113:973-983.
10. Ginsberg G, Hattis D, **Sonawane B**. (2004). Incorporating pharmacokinetic differences between children and adults in assessing children's risks to environmental toxicants. *Toxicol.Appl.Pharmacol* 198:164-183.
11. Ginsberg G, Slikker W Jr, Bruckner J, **Sonawane B**. (2004). Incorporating children's toxicokinetics into a risk framework. *Environ.Health Perspect*. 112:272-283.
12. Hattis D, Ginsberg G, **Sonawane B**, Smolenski S, Russ A, Kozlak M, Goble R. (2003). Differences in pharmacokinetics between children and adults--II. Children's variability in drug elimination half-lives and in some parameters needed for physiologically-based pharmacokinetic modeling. *Risk Anal* 23:117-142.
13. Olin SS, **Sonawane BR**. (2003). Workshop to develop a framework for assessing risks to children from exposure to environmental agents. *Environ.Health Perspect*. 111:1524-1526.
14. Ginsberg G, Smolenski S, Hattis D, **Sonawane B**. (2002). Population distribution of aldehyde dehydrogenase-2 genetic polymorphism: implications for risk assessment. *Regul.Toxicol.Pharmacol*. 36:297-309.

Agency Documents:

- A Framework for Assessing Health Risks to Children from Environmental Exposures (final report). National Center for Environmental Assessment. EPA/600/R-05/093A. (2006)
- Approaches for the Application of Physiologically Based Pharmacokinetic (PBPK) Models and Supporting Data in Risk Assessment (Final Report). National Center for Environmental Assessment. EPA/600/R-05/043F. (2006)
- Aging and Toxic Response: Issues Relevant to Risk Assessment (final report). National Center for Environmental Assessment. EPA/600/P-03/004A. (2006)
- A Cross-Species Mode of Action (MOA) Information Assessment: A Case Study of Bisphenol A (BPA). National Center for Environmental Assessment. EPA/600/R-50/044F. (2005)

NAME: Ravi P. Subramaniam

POSITION: Environmental Health Scientist

EXPERTISE: quantitative methods, biologically-based dose-response modeling, dosimetry modeling (PBPK, CFD, hybrid methods).

MAJOR ACTIVITIES in NCEA: Dose-response modeling for health risk assessment of formaldehyde, tetrachloroethylene, ethylene oxide. Uncertainty-Variability analyses for formaldehyde health risk assessment. Member, PBPK Workgroup.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Bombay, Bombay, India	BS	1979	Physics
University of Georgia, Athens, Georgia	MS	1984	Physics
Kent State University, Kent, Ohio	Ph.D.	1990	Physics

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2005 – Present	Environmental Health Scientist	EPA/ORD/NCEA	Washington, DC
2001-2004	Mathematical Statistician	EPA/ORD/NCEA	Washington, DC
1999-2000	Senior Scientist	Sciences International Inc.,	Alexandria, VA
1995-1998	Postdoctoral Fellow	CIIT	RTP, NC
1993-1995	Research Scientist, Neurosurgery	Robert Wood Johnson Med. School	Camden, NJ

SELECTED AWARDS and HONORS:

Several cash awards for superior performance, NCEA, U.S. EPA.

RELEVANT PROFESSIONAL ACTIVITIES:

Member, Society for Risk Analysis

PEER-REVIEWED PUBLICATIONS:

Peer-reviewed journal articles

Frederick, CB, Lomax, LG, **Subramaniam, R.**, Kimbell JS et al. 2002. Use of a hybrid computational fluid dynamics and physiologically-based inhalation model for interspecies dosimetry comparisons of ester vapors. *Toxicol. Appl. Pharmacol.* 183, 23.

R. Subramaniam, S. Anjilvel, B. Asgharian, J.I. Freijer, F.J. Miller. 2003. Analysis of lobar differences in particle deposition in the human lung. *Inhalation Toxicol* 15, 1-21.

Subramaniam RP, White P, Coglianò VJ. 2006. Comparison of cancer slope factors using different statistical approaches. *Risk Analysis* 26(3):825-30.

Crump KS, **Subramaniam RP**, Van Landingham CB. 2005. A numerical solution to the nonhomogeneous two-stage MVK model of cancer. *Risk Analysis* 25(4):921-6.

Chiu WA, Chen C, Hogan K, Lipscomb JC, Scott CS, **Subramaniam R**. 2007. High to low dose extrapolation: issues and approaches. *Human Ecological Risk Assessment* 13:46.

Subramaniam RP, Crump KS, Van Landingham CB, White P, Chen C, Schlosser PM. 2007. Uncertainties in the CIIT Model for Formaldehyde-Induced Carcinogenicity in the Rat: a Limited Sensitivity Analysis – I. *Risk Analysis*. In Press.

Agency Documents

Henry KD, Bayliss D, Jinot J, Keshava N, McGaughy R, **Subramaniam R**, Valcovic L. 2007. Evaluation of the Carcinogenicity of Ethylene Oxide. EPA/635/R-06/003

NAME: Linda K. Teuschler

POSITION: Mathematical Statistician

EXPERTISE: Chemical Mixtures Health Risk Assessment.

MAJOR ACTIVITIES in NCEA: Team Leader of NCEA's Chemical Mixtures Focus Team. Develops, tests and refines mixtures risk assessment methodologies and transfers these to the risk assessment community through guidance documents, workshops and publications. Develops multi-disciplinary collaborations within the Agency and across governmental, industrial and academic organizations to conduct research on chemical mixtures useful for risk assessment. Applies methods to assess mixtures of high priority to Agency Program Offices and Regions, including mixtures of drinking water disinfection by-products, organotins and pesticides. New assessment projects include dioxins, polycyclic aromatic hydrocarbons, and total petroleum hydrocarbons.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Cincinnati Cincinnati, OH	M.S.	1987	Mathematics
Northern Kentucky University Alexandria, Ky	B.S.	1985	Mathematics

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
1989 – Present	Mathematical Statistician	EPA/ORD/NCEA	Cincinnati, OH
1987 – 1989	Statistician	Computer Sciences Corporation	Cincinnati, OH
1985 – 1987	Graduate Teaching Assistant	University of Cincinnati Department of Mathematics	Cincinnati, OH

SELECTED AWARDS and HONORS:

STAA Honorable Mention Award 2005. Simmons, J. E., Richardson, S. D., Speth, T., Miltner, R. J., Rice, G., Schenck, K. and Teuschler, L., K., Development of an Research Strategy for Integrated Technology-Based Toxicology Studies on Drinking Water Disinfection ByProducts. *Environmental Health Perspectives*, 2002, 110 (Supplement 6): 1013-1024.

U.S. EPA Bronze Medal. 2004. U.S. EPA. 2003. Developing Relative Potency Factors for Pesticide Mixtures: Biostatistical Analyses of Joint Dose-Response. EPA/600/R-03/052.

U.S. EPA Science Communication Award. 2004. Short Course on Methods and Guidance for Health Risk Assessment of Chemical Mixtures.

U.S. EPA Silver Medal. 2002. U.S. EPA. 2000. Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures. EPA/630/R-00/002.

INVITED LECTURES/SYMPOSIA:

Teuschler, L.K. 2007. *Combination Toxicity: Evaluating Chemical Mixtures when Common Mode of Action Assumptions Don't Apply*. WHO/IPCS International Workshop on Aggregate/Cumulative Risk Assessment. March 19-21, 2007.

Teuschler, L.K. 2006. *Chemical Mixtures Health Risk Assessment Methods, Research and Data Needs. Workshop on Mixture Toxicity*. SETAC and The European Union's Integrated Project NoMiracle (Novel Methods for Integrated Risk Assessment of Cumulative Stressors in Europe), April 3-6, 2006. Krakow, Poland.

Teuschler, L.K. 2005. *Deciding Which Chemical Mixtures Risk Assessment Methods Work Best For What Mixtures*. Society of Toxicology Contemporary Concepts in Toxicology - Charting the Future: Building the Scientific Foundation for Mixtures Joint Toxicity and Risk Assessment. Atlanta, GA. February 16-17, 2005

Teuschler, L.K., R.C. Hertzberg, G.E. Rice, J.E. Simmons. 2002. *EPA Research Strategies for Chemical Mixtures: Targeted Research for Meaningful Results*. International Conference on Chemical Mixtures. September 10-12, 2002. Atlanta, GA.

Teuschler, L.K., Rice, G., Feder, P., Bull, R., Schenck, K. Ma, Z., Simmons, J.E. 2004. *Toxicological and Statistical Criteria for Defining Sufficient Similarity of Complex Chemical Mixtures*. Society for Risk Analysis 2004 Annual Meeting. Palm Springs, CA.

RELEVANT PROFESSIONAL ACTIVITIES:

- Member, Society for Risk Analysis (SRA) 1998-Present. SRA Dose-Response Specialty Group Secretary-Treasurer. 2006-2007.
- Steering Team member for the ILSI Health and Environmental Science Institute's Assessment Methodologies Committee Project on the Evaluation of Chemical Mixtures. 2006-Present.
- Organized and presented at Workshops on Methods and Guidance on Health Risk Assessment of Chemical Mixtures. Toxicology and Risk Assessment Conferences. West Chester, OH. 2004-2007.; Society for Risk Analysis Annual Meetings. 2004-2006.

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles:

Teuschler, L.K., Gennings, C., Hartley W.R., Carter, H., Thiyagarajah, A. Schoeny, R., Cubbison, C. 2005. The interaction effects of binary mixtures of benzene and toluene on the developing heart of medaka (*Oryzias latipes*). *Chemosphere*.58(9):1283-1291.

Axelrad, D.A., K. Baetcke, C. Dockins, C.W. Griffiths, R.N. Hill, P.A. Murphy, N. Owens, N.B. Simon, **L.K. Teuschler**. 2005. Risk Assessment for Benefits Analysis: Framework for Analysis of a Thyroid-Disrupting Chemical. *Journal of Toxicology and Environmental Health, Part A*. 68:837-855.

Gennings, C., W.H. Carter, Jr., R.A. Carchman, **L. K. Teuschler**, J.E. Simmons, E.W. Carney. 2005. A Unifying Concept for Assessing Toxicological Interactions: Changes in Slope. *Toxicological Sciences*. 88(2):287-297.

Teuschler, L.K., J.E. Simmons. 2003. Approaching the Toxicity of Disinfection By-Products in Drinking Water as a Mixtures Problem. *Journal AWWA*. 95(6):131-138

Teuschler, L., J. Klaunig, E. Carney, J. Chambers, R. Conolly, C. Gennings, J. Giesy, R. Hertzberg, C. Klaassen, R. Kode11, D. Paustenbach, R. Yang. 2002. Support of Science-Based Decisions Concerning the Evaluation of the Toxicology of Mixtures: A New Beginning *Regulatory Toxicology and Pharmacology*. August, 2002; 36 (1): 34-39.

Hertzberg, RC, **LK Teuschler**. 2002. Evaluating Quantitative Formulas for Dose-Response Assessment of Chemical Mixtures. *Environmental Health Perspectives*. 110(6):965-970.

Book/Book Chapters:

Rice, G, L. **K. Teuschler**, J.E. Simmons and R. C. Hertzberg. 2005. Mixtures, Toxicology and Risk Assessment. pp. 120-123. Encyclopedia of Toxicology (2nd edition). Edited by Philip Wexler. Elsevier: Oxford. ISBN 0-12-745354-7

Agency Documents:

U.S. EPA. 2007. Concepts, Methods and Data Sources for Health Risk Assessment of Multiple Chemicals, Exposures and Effects. Final Draft. ORD/NCEA. Cincinnati, Ohio EPA/600/R-06/013A.

U.S. EPA. 2003. The Feasibility of Performing Cumulative Risk Assessments for Mixtures of Disinfection By-Products in Drinking Water. EPA/600/R-03/051. ORD/NCEA Cincinnati, OH.

NAME: George M. Woodall, Jr.

POSITION: Toxicologist

EXPERTISE: Less-than-lifetime inhalation health risk assessment

MAJOR ACTIVITIES in NCEA: Project Lead for the development of the Acute Inhalation Health Risk Assessment Methodology; Chemical Manager for revisions to the IRIS Assessment of Styrene, and the Draft Health Risk Assessment for Acute and Short-term Exposures to Ethylene Oxide; Managing Program to develop a Database of Toxicological Exposure-Response Data; ORD Representative to the National Advisory Committee for Acute Exposure Guideline Levels (AEGLs) and Chemical Manager for several AEGL chemicals; Ad Hoc Advisor to the Provisional Advisory Level (PAL) program within NHSRC; Participant in IRIS Pilot Project to incorporate RAF recommendations to improve the RfD/RfC process; Member of the interagency Workgroup to develop the Cleanup Decision-Making Guidance for Chemical Incidents of National Significance (coordinated by the White House); Member of the ORD Red Team.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Florida, Gainesville, FL	BS	1983	Microbiology and Cell Science
East Tennessee State University, Johnson City, TN	MSEH	1985	Environmental Health
North Carolina State University, Raleigh, NC	PhD	1996	Toxicology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2002 – Present	Toxicologist	EPA/ORD/NCEA	Research Triangle Park, NC
2000 – 2002	Senior Toxicologist	American Petroleum Institute	Washington, DC
1995 – 2000	Senior Toxicologist	Pacific Environmental Services (PES)	Research Triangle Park, NC
1992 – 1995	Toxicologist	Science Applications International Corporation (SAIC)	Research Triangle Park, NC
1987 – 1992	Toxicologist	TRC Environmental Corp NC State University	Research Triangle Park, NC, Raleigh, NC

SELECTED AWARDS and HONORS:

Bronze Award, 2004

“S” Awards (2), 2005 and 2006

“On-the-Spot” Awards (9), 2002 – 2007

INVITED LECTURES/SYMPOSIA:

Lecture: “Case Studies from the Current AEGL Process,” Toxicology Forum – Winter Meeting, Washington, DC (January 2006)

Symposium Co-Chair and Presenter: "Acute Health Risk Assessment: Case Studies and Methodological Issues," SRA Meeting, Orlando, FL (December 2005)

Lecture: "EPA Reference Values: Regulatory Context," Leland Urban Air Toxics Research Center, Houston, TX (October 2005)

Lecture: "Developing an EPA Acute Inhalation Methodology," Regional Risk Assessors Conference, Kansas City, MO (May 2005)

Lecture: "Development and Uses of Acute Reference Values" Research Triangle Chapter of the Society for Risk Analysis, Mini-symposium on Acute Guideline Values, RTP, NC (June 2003)

RELEVANT PROFESSIONAL ACTIVITIES:

Full Member: Society of Toxicology

Member: North Carolina Society of Toxicology

Associate Member: Sigma Xi

Member: Society for Risk Analysis

Member of the US Delegation to the OECD Ad Hoc Inhalation Experts Workgroup, and Co-Chair of the Performance Assessment Group reviewing a CxT protocol for possible inclusion in Test Guideline 403 (Acute Inhalation Toxicity).

PEER –REVIEWED :

Peer Review Journal Articles

L.D. Claxton and **G.M Woodall** (2007) A review of the mutagenicity and rodent carcinogenicity of ambient air, Mutation Research/Reviews in Mutation Research, In Press, Corrected Proof, Available online 18 March 2007.
(<http://www.sciencedirect.com/science/article/B6T2G-4N919SV-1/2/314034f54dbe0e63b7aaf651b2c43f6d>)

Woodall, G.M., R.L. Smith, and G. Granville (2005) Proceedings of the Hydrogen Sulfide Health Research & Risk Assessment Symposium: October 31- November 2, 2000, Chapel Hill, NC. Inhalation Toxicology, 17(11): 593-639.

Woodall, G.M. (2005) Acute health reference values: Overview, perspective, and current forecast of needs. Journal of Toxicology and Environmental Health, Part A, 68:901-926

Agency Documents

Preliminary Methodology for Assessment of Health Effects from Acute Inhalation Exposures, Interagency Review Draft, EPA 600/R-05/112 (August 2006)

IRIS Toxicological Review for Ethylene Oxide: Acute Assessment (Submitted for Interagency Review, September 2006)

IRIS Toxicological Review for Styrene (In process)

Long-Term Goal 3

Presenters

Long Term Goal 3

Session Coordinators:

Ila Cote, Chon Shoaf,
Debra Walsh

Presenters

NAME: James S. Brown, Jr.
Scientist

POSITION: Health

EXPERTISE: Respiratory disposition of particles and gases, aerosol science, physiology

MAJOR ACTIVITIES in NCEA: Develop, coordinate, and evaluate dosimetric and toxicological components of the U.S. EPA Science Assessments related to National Ambient Air Quality Standards (NAAQS). Provide expert advice within the U.S. EPA and to external groups on respiratory deposition and clearance of particulate matter, clinical studies investigating acute effects from exposure to airborne contaminants, aerosol science, and respiratory physiology.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Temple University, Philadelphia, PA	BS	1989	Environmental Engineering Technology
University of North Carolina, Chapel Hill, NC	MSPH	1991	Industrial Hygiene
University of North Carolina, Chapel Hill, NC	PhD	2000	Respiratory Health / Inhalation Toxicology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2003 - Present	Health Scientist	EPA/ORD/NCEA	RTP, NC
2001 - 2003	Research Associate	University of North Carolina	Chapel Hill, NC
2000 - 2001	Postdoctoral Fellow	University of North Carolina	Chapel Hill, NC

SELECTED AWARDS and HONORS:

International Society for Aerosols in Medicine (2003) – Young Investigator Award

U.S. EPA Bronze Metal (2004 ORD Award) – Particulate Matter Air Quality Criteria Document Team

U.S. EPA Special Accomplishment Recognition Awards (“S” Award) – Six since 2004

U.S. EPA On-The-Spot (OTS) Awards – Five since 2004

INVITED LECTURES/SYMPOSIA [2002 to present]:

Invited Lecturer – Particle dosimetry and health effects in the respiratory tract. Aerosol Technology (ENVR 416), Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina, Chapel Hill, NC, September 2005, 2006.

Invited Lecturer – Health effects of air pollution. Special Topics - Air Pollution, (ENST 100), Carolina Environmental Program, University of North Carolina, Chapel Hill, NC, September 2005.

Invited Speaker – Targeting therapeutic aerosol delivery in cystic fibrosis. Pulmonary Research Conference, Division of Pulmonary Diseases and Critical Care Medicine, School of Medicine, University of North Carolina, Chapel Hill, NC, August 2003.

Invited Speaker – Aerosol deposition in cystic fibrosis: Experimental results vs. multiple-path model predictions. The 16th Annual North American Cystic Fibrosis Conference, New Orleans, LA, October 2002.

RELEVANT PROFESSIONAL ACTIVITIES [2002 to present]:**Workshop/Symposia Participation**

Session Chair – Presentation of SO_x Scientific Evidence - Animal/Human Toxicology. U.S. EPA Workshop on Assessment of Health Science for the Review of the NAAQS for Nitrogen and Sulfur Oxides, Durham, NC, February 2007.

Speaker – Evaluation of NO_x Controlled Human Exposure Studies. As part of Presentation of NO_x Scientific Evidence - Animal/Human Toxicology. U.S. EPA Workshop on Assessment of Health Science for the Review of the NAAQS for Nitrogen and Sulfur Oxides, Durham, NC, February 2007.

Speaker and Session Chair – Evidence from human clinical studies. As part of Session Four: Biological Plausibility of Health Effects due to Air Pollutants. U.S. EPA Workshop: Interpretation of Epidemiological Studies of Multipollutant Exposure and Health Effects, Chapel Hill, NC, December 2006.

Speaker and Session Chair – The linkage between aerosol exposure and dose to the respiratory tract. As part of Approaches to Internal Dosimetry. Society for Risk Analysis, Baltimore, MD, December 2006.

Invited Member – International Agency for Research on Cancer (Feb 2006) - Monograph Working Group evaluating the carcinogenic risk to humans from exposure to carbon black, titanium dioxide, and non-asbestiform talc (IARC Monograph 93). Principal findings in The Lancet Oncology (7:295-296, 2006).

Journal Referee

Aerosol Science and Technology
American Journal of Respiratory and Critical Care Medicine
American Journal of Respiratory Cell and Molecular Biology
Inhalation Toxicology
Journal of Aerosol Medicine
Journal of the Air and Waste Management Association
Proceedings of the American Thoracic Society

NAME: Tara L. Greaver

POSITION: Ecologist

EXPERTISE: Plant eco-physiology, climate change impacts on ecosystems

MAJOR ACTIVITIES in NCEA: Develop and coordinate the Integrated Science Assessment (ISA) and its annexes for the U.S. EPA scientific review of the secondary (welfare-based) National Ambient Air Quality Standards (NAAQS) for NO_x and SO_x. Develop experimental studies and literature review assessing climate change impacts on the vulnerability of ecosystems to NO_x and SO_x pollution.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Goucher College, Baltimore, MD	BS	1996	Biology
University of Miami, Coral Gables, FL	MS	2000	Ecology
University of Miami, Coral Gables, FL	PhD	2005	Ecology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
Jan 2007 - present	Ecologist	EPA/ORD/NCEA	RTP, NC
2006	Postdoctoral Fellow	EPA/ORD/NCEA	RTP, NC
2005-2006	Postdoctoral Fellow	The Johns Hopkins University	Baltimore, MD

SELECTED AWARDS and HONORS [3 selected]:

U.S. EPA STAR-GRO Fellowship (2002-2005)

Organization for Tropical Studies Scholarship, Duke University, Durham, NC (2004)

Tropical Biology Fellowship University of Miami, Coral Gables, FL (2002)

INVITED LECTURES/SYMPOSIA [5 selected from 2002 to present]:

Invited Speaker- Climate Change Impacts on Coastal Ecosystems (2007). Department of Biology, New York University at Buffalo, Buffalo, NY.

Invited Speaker- Global Change Impacts on Terrestrial Dune Ecosystems (2007). Department of Biology, Wake Forest University, Winston-Salem, NC.

Invited Speaker- Soil-Plant-Atmosphere Interactions: Paleoclimate, Sea-level Rise and CO₂ Recycling (2005) Department of Earth and Planetary Sciences, Johns Hopkins, Baltimore MD

Invited Speaker- Nature's Detectives: Using Stable Isotopes to Understand Climate Change Impacts on Ecosystems (2005) Department of Biology, Goucher College, Baltimore MD

Invited Speaker- Estimating Water Input by Metasequoia into High-Latitude Eocene Paleoenvironments. (2005) Geological Society of America Annual Meeting, Salt Lake City, UT, USA

RELEVANT PROFESSIONAL ACTIVITIES [2002 to present]:

Professional Society Membership

Member, American Geophysical Union

Member, Barrier Island Network

Member, Ecological Society of America

Workshop/Symposia Participation

Organized workshop on Assessment of Environmental Science for the Review of the NAAQS for Nitrogen and Sulfur Oxides. Chapel Hill, NC, July 17-19, 2007

Speaker and Session Chair – Climate Change Impacts on Ecosystem Vulnerability to NO_x and SO_x pollution. U.S. EPA Workshop on Assessment of Environmental Science for the Review of the NAAQS for Nitrogen and Sulfur Oxides, Durham, NC, July 2007.

Session Chair – Integrated Synthesis of Policy-relevant Science. U.S. EPA Workshop on Assessment of Environmental Science for the Review of the NAAQS for Nitrogen and Sulfur Oxides, Durham, NC, July 2007.

PEER –REVIEWED PUBLICATIONS [selected pubs from 2002 to present]:

Peer Review Journal Articles

Greaver TL and Sternberg LSL. Fluctuating deposition of ocean water drives plant function on coastal sand dunes. *Global Change Biology* 213, 216-223 (2007).

Retallack, G.J., **Greaver**, T., and Jahren, A.H. Return to Coalsack Bluff and the Permian-Triassic boundary in Antarctica. *Global and Planetary Change*. 55, 90-108 (2007).

Retallack, G.J., Metzger, C.A., Jahren, A.H., **Greaver**, T., Smith, R.M.H., and Sheldon, N.D. Middle-Late Permian mass extinction on land. *GSA Bulletin* 118(11): 1398-1411. (2006).

Greaver TL and Sternberg L da SL. Linking marine resources to ecotonal shifts in water relations of terrestrial vegetation. *Ecology*. 87, 2389-2396 (2006)

Greaver T; Sternberg L da SL; Schaffer B; Moreno T. An Empirical Method of Measuring CO₂ recycling by Isotopic Enrichment of Respired CO₂. *Agricultural and Forest Meteorology* 128, 67-79 (2005)

Technical Report

Greaver T; Sternberg L da SL; Schaffer B; Moreno T (2004). Free Air Respiratory Carbon Isotope Enrichment Experiment. Final Technical Report, Southeast Regional Center- National Institute for Global Environmental Change. Environmental Institute Publication Number 91. The University of Alabama, Tuscaloosa, AL 35487

NAME

Douglas Johns
Scientist

POSITION

Health

EXPERTISE: Controlled human exposures, chemical metabolism, occupational health, considerations for the aging as a susceptible population in health risk assessments

MAJOR ACTIVITIES in NCEA: Reviewing and analyzing age-related changes in physiology and behavior, and evaluating the associated implications for risk assessments. Working as a member of the risk assessment team for 1,2-dichloroethane and serving as a co-author of the metabolism section. Efforts include developing a publicly-available database of physiological parameters for use in physiologically-based pharmacokinetic modeling.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Washington, Seattle, WA	PhD	2005	Environmental and Occupational Hygiene
University of Washington, Seattle, WA	MS	2000	Environmental Health
University of Washington, Seattle, WA	BS	1998	Applied Biology
Utah State University, Logan, UT			

RELEVANT PROFESSIONAL EXPERIENCE:

2005 – Present Health Scientist, EPA/ORD/NCEA, Washington, DC

2002 – 2005 Pre-Doctoral Instructor, University of Washington, Department of Environmental Health, Seattle, WA

2001 – 2005 Research Assistant, University of Washington, Department of Environmental Health, Seattle, WA

1999 – 2000 Occupational Health Scientist, King County, Safety and Claims Department, Seattle, WA

SELECTED AWARDS and HONORS:

U.S. EPA, On the Spot Award, 2006
U.S. EPA, Superior Accomplishment Recognition Award (S-Award), 2006
ARCS Fellow, University of Washington, 2002

INVITED LECTURES/SYMPOSIA:

Invited Speaker at a Symposium on the Aging Population as a Sensitive Subgroup, California Environmental Protection Agency, Pacific Grove, CA, April, 2006.
“Physiological, Functional, and Pharmacokinetic Changes with Age in Older Adults and their Implications in Risk Assessment”

RELEVANT PROFESSIONAL ACTIVITIES:

Organized a national workshop to discuss factors affecting exposures to environmental agents in aging populations. Arlington, VA, February 14-15, 2007

Member, Society for Risk Analysis (2006 – Present)
Member, American Industrial Hygiene Association (2002 – 2005)

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles

Johns, D.O., Daniell, W.E., Shen, D.D., Kalman, D.A., Dills, R.L., Morgan, M.S. (2006). Ethanol-induced increase in the metabolic clearance of 1,1,1-trichloroethane in human volunteers. *Toxicological Sciences* 92(1), 61-70.

Johns, D.O., Dills, R.L., Morgan, M.S. (2005). Evaluation of dynamic headspace with gas chromatography/mass spectrometry for the determination of 1,1,1-trichloroethane, trichloroethanol, and trichloroacetic acid in biological samples. *Journal of Chromatography B* 817(2), 255-261.

Nemere, I., Yazzi-Atkinson, D., Johns, D.O., Larsson, D. (2002). Biochemical characterization and purification of a binding protein for 24,25-dihydroxyvitamin D-3 from chick intestine. *Journal of Endocrinology* 72(1), 211-219.

NAME: Jee Young Kim

POSITION: Epidemiologist

EXPERTISE: Occupational and environmental epidemiology, with specific focus on air pollution exposures and health effects

MAJOR ACTIVITIES in NCEA: Evaluate scientific information on six criteria air pollutants to support review of the National Ambient Air Quality Standards (NAAQS). Co-authored various chapters in the U.S. EPA Ozone and Lead Air Quality Criteria Documents. Currently serving as project manager for the U.S. EPA Integrated Science Assessment for Sulfur Oxides.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Pomona College, Claremont, CA	BA	1997	Chemistry
Harvard School of Public Health, Boston, MA	SM	2000	Industrial Hygiene
Harvard School of Public Health, Boston, MA	SD	2002	Occupational Epidemiology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2004 – Present	Epidemiologist	EPA/ORD/NCEA	Research Triangle Park, NC
2005 – Present	Visiting Scientist	Harvard School of Public Health	Boston, MA
2002 – 2004	Research Fellow	Harvard School of Public Health	Boston, MA

SELECTED AWARDS and HONORS:

EPA Special Accomplishment Recognition Awards (“S” Award) for significant contributions to the *Ozone Air Quality Criteria Document* and *Lead Air Quality Criteria Document* (2005, 2006, 2007).

EPA Time-off Awards for significant contributions to the *Provisional Assessment of Recent Studies on Health Effects of Particulate Matter Exposure* (2006) and for organizing U.S. EPA Workshop on *Interpretation of Epidemiologic Studies of Multipollutant Exposure and Health Effects* (2006).

EPA On-The-Spot-Awards for providing critical scientific expertise at various meetings, including those with CASAC and industry representatives (2004, 2005).

INVITED LECTURES/SYMPOSIA:

Organized symposium on Health Effects of Lead Exposure and assisted with organization of symposium on Health Effects of Ozone Exposure at the *International*

Society for Environmental Epidemiology 19th Annual Conference, Mexico City, Mexico (2007).

Served as chair for Session Two on the Presentation of SO_x Scientific Evidence – Epidemiology at the U.S. EPA Workshop on Assessment of Health Science for the Review of the NAAQS for Nitrogen and Sulfur Oxides, Durham, NC (2007).

Organized U.S. EPA Workshop on *Interpretation of Epidemiologic Studies of Multipollutant Exposure and Health Effects* and served as chair for Session Two on Issues Involved in Interpretation of Epidemiologic Analyses – Multipollutant Exposures, Chapel Hill, NC (2006).

Served as guest lecturer for a Special Topics - Air Pollution (ENST 100) course at the University of North Carolina at Chapel Hill (2005).

Served as guest lecturer for the Occupational Health Research Seminar Series at the Harvard School of Public Health, Boston, MA (2002, 2004).

RELEVANT PROFESSIONAL ACTIVITIES:

Member, International Society for Environmental Epidemiology

Member, Sigma Xi

Journal Referee

American Journal of Industrial Medicine

Cancer Epidemiology, Biomarkers and Prevention

Clinical Cancer Research

Journal of the Air & Waste Management Association

Occupational and Environmental medicine

PEER-REVIEWED PUBLICATIONS:

Peer Review Journal Articles

Boyce PD, **Kim JY**, Weissman DN, Hunt J, Christiani DC. 2006. pH increase observed in exhaled breath condensate from welding fume exposure. *J Occup Environ Med* 48:353-356.

Chen JC, Stone PH, Verrier RL, Nearing BD, MacCullum G, **Kim JY**, Herrick RF, You J, Zhou H, Christiani DC. 2006. Personal coronary risk profiles modify autonomic nervous system responses to air pollution. *J Occup Environ Med* 48:1133-42.

Kim JY, Hecht SS, Mukherjee S, Carmella SG, Rodrigues EG, Christiani DC. 2005. A urinary metabolite of phenanthrene as a biomarker of polycyclic aromatic hydrocarbon metabolic activation in workers exposed to residual oil fly ash. *Cancer Epidemiol Biomarkers Prev* 14:687-692.

Kim JY, Chen JC, Boyce PD, Christiani DC. 2005. Exposure to welding fumes is associated with acute systemic inflammatory responses. *Occup Environ Med* 62:157-163.

Wang Z, Neuburg D, Li C, Su L, **Kim JY**, Chen JC, Christiani DC. 2005. Global gene expression profiling in whole-blood samples from individuals exposed to metal fumes. *Environ Health Perspect* 113:233-241.

Christiani DC, Hauser R, Herrick RF, **Kim JY**, Magari SR, Smith TJ, Williams P, Wand M. 2005. Cardiopulmonary effects of metal-containing particulate exposure. Mickey Leland National Urban Air Toxics Research Center Research Report No. 8.

Kim JY, Magari SR, Herrick RF, Smith TJ, Christiani DC. 2004. Comparison of fine particulate measurements from a direct-reading instrument and a gravimetric sampling method. *J Occup Environ Hyg* 1:707-15.

Kim JY, Mukherjee S, Ngo L, Christiani DC. 2004. Urinary 8-hydroxy-2'-deoxyguanosine as a

NAME: Ellen F. Kirrane
Epidemiologist

POSITION:

EXPERTISE: Environmental health epidemiology, occupational exposures

MAJOR ACTIVITIES in NCEA: Develop, coordinate, and evaluate epidemiology sections of the U.S. EPA Science Assessments related to National Ambient Air Quality Standards (NAAQS). Provide technical assistance within EPA on epidemiologic and exposure assessment issues.

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
National Institute for Environmental Health Sciences (Coda Research)	Postdoctoral Training	2003-2004	Epidemiology
	Ph.D.	2002	Epidemiology
School of Public Health, University of North Carolina at Chapel Hill	M.S.	1993	Environmental Health (Industrial Hygiene)
Harvard School of Public Health	B.A.	1987	Political Science
Barnard College, Columbia University			

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2007 to date	Epidemiologist	EPA/ORD/NCEA	RTP, NC
2005-2007	Research Epidemiologist	RTI International	RTP, NC
2001-2002	P.I., NC SEARCH Solvent Study	University of North Carolina	Chapel Hill, NC
1993-1998	Occupational Hygienist	Hunter College Center for Occupational and Environmental Health	New York, NY
1993	Temporary Advisor	World Health Organization	Copenhagen, Denmark
1989-1991	Occupational Health Educator	Clean Harbors Co.	Braintree, MA
1987-1988	Program Assistant	City of New York Dept of Environmental Protection	New York, NY

SELECTED AWARDS and HONORS

US EPA On the Spot Award, 2007

Delta Omega Honorary Public Health Society, 2003

RELEVANT PROFESSIONAL ACTIVITIES

Reviewer for *Journal of Exposure Analysis and Environmental Epidemiology*

PEER –REVIEWED PUBLICATIONSPeer Review Journal Articles

Kirrane E., D. Loomis, P. Eggehy, and L. Nylander-French. "Personal Exposure to Fuel Emissions among Commercial Fishers: 2-Stroke, 4-Stroke and Diesel Engines." *Journal of Exposure Science and Environmental Epidemiology*. 2006 May 31; [Epub ahead of print]

Kirrane E., J.A. Hoppin, F. Kamel, D.M. Umbach, W. Boyes, A.J DeRoos, M. Alavanja, and D.P. Sandler. "Retinal Degeneration and Other Eye Disorders in Wives of Farmer Pesticide Applicators Enrolled in the Agricultural Health Study." *American Journal of Epidemiology*; Vol. 161(11):1020-9.

Kirrane E., J. Hoppin, D.M. Umbach, C. Samanic, and D.P. Sandler (2004). "Patterns of Pesticide Use and Their Determinants among Wives of Farmer Pesticide Applicators in the Agricultural Health Study." *Journal of Occupational Environmental Medicine*; Vol. 46, pp. 856-865.

NAME: Tom Long

POSITION: Physical Scientist

EXPERTISE: Exposure assessment and air quality analysis for criteria pollutants and air toxics; nanoparticle toxicology.

MAJOR ACTIVITIES in NCEA: Principal author of Exposure Chapter for upcoming PM Science Assessment. Contributing author for Exposure Chapters for upcoming SO_x and NO_x Science Assessments.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
Pennsylvania State University University of North Carolina – Chapel Hill	BS PhD candidate (anticipated completion)	1993 2007 (Aug)	Chemical Engineering Environmental Sciences and Engineering

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2007 – present	Physical Scientist	EPA/ORD/NCE	RTP, NC
2005 – 2007	Student Contractor	A	RTP, NC
1998 – 2007	Environmental Engineer	EPA/ORD/NHEERL/NTD TRJ Environmental, Inc.	Chapel Hill, NC

SELECTED AWARDS and HONORS:

2006 Graduate Student Travel Award, Society of Toxicology
Delta Omega Book Award, 1999

RELEVANT PROFESSIONAL ACTIVITIES:

International Society of Exposure Analysis
Society of Toxicology
American Institute of Chemical Engineers

PUBLICATIONS:

Peer Reviewed Journal Articles:

Long, T.C., Tajuba, J., Sama, P., Saleh, N., Swartz, C., Parker, J., Lowry, G.V., Veronesi, B. (2007). Nanosize titanium dioxide stimulates reactive oxygen species in brain microglia and damages neurons, *in vitro*. *Environ. Health Persp.* Submitted.

Long, T.C., Saleh, N., Tilton, R.D., Lowry, G.V., Veronesi, B. (2006). Titanium dioxide (P25) produces reactive oxygen species in immortalized brain microglia (BV2): implications for nanoparticle neurotoxicity. *Environ. Sci. Technol.* 40(14): 4346-4352.

Johnson, T., **Long, T.** (2005). Determining the frequency of open windows in residences: a pilot study in Durham, North Carolina during varying temperature conditions. *J. Exposure Anal. Environ. Epidemiol.* 15(4): 329-349.

Long, T., Johnson, T., Ollison, W. (2004). Frequency of open windows in motor vehicles under varying temperature conditions: a videotape survey in North Carolina during 2001. *J. Exposure Anal. Environ. Epidemiol.* 14(4): 337-353.

Long, T., Johnson, T., Ollison, W. (2002). Determining the frequency of open windows in motor vehicles: a pilot study using a video camera in Houston, Texas during high temperature conditions. *J. Exposure Anal. Environ. Epidemiol.* 12(3): 214-225.

Johnson, T., **Long, T.**, Ollison, W. (2000). Prediction of hourly microenvironmental concentrations of fine particles based on measurements obtained from the Baltimore Scripted Activity Study. *J. Exposure Anal. Environ. Epidemiol.* 10(5): 1-9.

Book Chapters:

Aitken, M.D. and **Long, T.C.** (2004). Biotransformation, biodegradation and bioremediation of polycyclic aromatic hydrocarbons (pp.83-124). In: *Soil Biology, Volume 2: Biodegradation and Bioremediation*, A. Singh and O.P. Ward, eds. Springer-Verlag, Heidelberg, Germany, 2004.

Technical Reports:

Johnson, T., **Long, T.**, Mozier, J., Capel, J. (2004). An evaluation of the methodology used to estimate respiratory ventilation rates in current EPA exposure models. Draft report prepared under Contract No. 2003-100917 for the American Petroleum Institute, Washington, DC.

Raymer, J.H., Johnson, T., Akland, G., Michael, L., **Long, T.** (2004). Testing of a model to predict human exposures to aldehydes arising from mobile and point sources (Final Report). Grant No. R826787-01-0, prepared by RTI International and TRJ Environmental, Inc., for the National Center for Environmental Research, USEPA.

ICF Consulting and TRJ Environmental, Inc. (2000). Development of microenvironmental factors for the HAPEM4 in support of the National Air Toxics Assessment (NATA). Prepared under Contract 68-D6-0064 for OAQPS, USEPA, Research Triangle Park, NC.

NAME: Dennis J. Kotchmar

POSITION: Medical Officer

EXPERTISE (Scientific assessment of environmental epidemiological evidence bases of ambient criteria pollutants):

MAJOR ACTIVITIES in NCEA (For criteria pollutants perform literature searches, select environmental epidemiology studies for review, perform evidence based assessments of this literature, synthesize and integrate this information in a concise summary format. Provide an understanding of the public health importance of this result):

EDUCATION/TRAINING: (Including Certifications and Licenses):

Institution	Degree	Year	Field of Study
Medical University of South Carolina	M.D.	1978	Medicine
Case Western Reserve University	M.S.	1969	Chemistry
Pennsylvania State University	B.S.	1967	Chemistry

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
1981 – Present	Medical Officer	EPA/ORD/NCEA	RTP, NC
1979-1981	Research Medical Officer	EPA/ORD/HERL	RTP, NC
1969-1972	Instructor Lieutenant	U.S. Navy	Norfolk, VA

SELECTED AWARDS and HONORS

U. S. EPA Bronze Metal (2004) PM AQCD Team

U.S. EPA Incentive Recognition awards: Since 2002, time off awards(7), special recognition(1), On the Spot(6)

RELEVANT PROFESSIONAL ACTIVITIES

Session chair; 2007 NOx U.S.EPA Workshop on Assessment of Health Science for the review of the NAAQS for Nitrogen and Sulfur Oxides, Durham, NC

Co chair U.S.2005 EPA Lead Peer consultation workshop Epidemiological chapter for preparation of Lead ACQD, Chapel Hill, NC

Co chair 2004 U.S. EPA Ozone Consultative review Epidemiology chapter for preparation of the Ozone ACQD, Durham, NC

Co chair 2003 U.S. EPA Ozone Epidemiology authors workshop for preparation of the ozone ACQD, Durham, NC

Session Chair/Co organizer 2002 U. S. EPA GAM related statistical issues in PM epidemiology workshop, Durham, NC

Continuing Medical Education credits (30) 1999 ATS International Conference, San Diego, CA

PEER –REVIEWED PUBLICATIONS

Agency Documents

U.S.Environmental Protection Agency PM Provisional Assessment (2006)

U.S. Environmental Protection Agency Air Quality Criteria for Lead (2006) Epidemiology chapter-

Co manager, coauthor; Integrative chapter-contributor.

U.S. Environmental Protection Agency Air Quality Criteria for Ozone (2006)

Epidemiology chapter-manager, coauthor; Integrative chapter-contributor.

U.S. Environmental Protection Agency Air Quality Criteria for PM (2004) Epidemiology chapter-

Co manager, coauthor; Integrative chapter-contributor.

NAME Luben, Thomas Joseph	POSITION TITLE Epidemiologist		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Allegheny College, Meadville, PA	BS	1992-1996	Biology
Tulane University, New Orleans, LA	MSPH	1999-2000	Environmental Health
Colorado State University, Fort Collins, CO	Ph.D.	2003-2006	Environmental Health
University of North Carolina, Chapel Hill, NC	Post-Doc	2006-2007	Environ. Epidemiology

Positions and Employment

2001-2002	Research Assistant, School of Forestry and Environmental Science, Yale University
2002-2006	Graduate Research Assistant, Environmental Health Laboratory, Colorado State University
2004-2005	Graduate Teaching Assistant, Environmental Health Department, Colorado State University
2006-2007	Post-Doctoral Fellow, Environmental Epidemiology, University of North Carolina at Chapel Hill
2007-	Epidemiologist, National Center for Environmental Assessment, U.S. EPA

Other Experience and Professional Memberships

2003-2005	Member, Colorado Environmental Health Association
2004-2005	President, Environmental Health Student Association, Colorado State University
2004-2005	Member, Graduate Education Sub-committee, Department of Environmental and Radiological Health Sciences, Colorado State University
2004-Present	Member, International Society of Environmental Epidemiology
2004-Present	Member, Society for Epidemiologic Research

Honors

2007	NIH Trainee Travel Award, American Society of Andrology, Tampa FL. April 2007; for abstract entitled "The Healthy Men Study: An Evaluation Of
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Exposure to Disinfection By-Products in Tap Water and Sperm Quality”

- 2006 Student Travel Award, American Congress of Epidemiology, Seattle, WA. June 2006; for abstract entitled “Maternal Exposure to Disinfection By-products during Gestation and Risk of Hypospadias”
- 2004 Outstanding Graduate Student; Department of Environmental and Radiological Health Sciences, Colorado State University
- 2004 Outstanding Student Poster Presentation; Colloquium on Environmental Research, Colorado State University

A. Selected peer-reviewed publications (in chronological order).

1. Oehm, NJ, Luben, TJ & Ostrofsky, ML. Spatial Distribution of Acid-Volatile Sulfur in the Sediments of Canadota Lake, PA. *Hydrobiologia* 345: 79-85, 1997
2. Nuckols JR, Luben TJ. Comparison of exposure assessment methods for risk estimation of disinfection by-products. *Epidemiology*, 15(4): S106. (2004). [Abstract].
3. Luben TJ, Nuckols JR, Lynberg MC, Mendola P. Feasibility of matching study participant residence with a specific water utility in epidemiologic studies investigating exposure to disinfection by-products. *Epidemiology*, 15(4): S104-S105. (2004). [Abstract].
4. Nuckols JR, Langlois P, Lynberg ML, Luben T. Linking Geographic Water Utility Data with Study Participant Residences from the National Birth Defects Prevention Study. Amer. Water Works Assn. Denver, CO. 80 p. 2004. Web Publication: <http://www.awwarf.org/research/TopicsandProjects/execSum/PDFReports/2832.pdf>
5. Meyer KJ, Reif JS, Veeramachaneni DNR, Luben TJ, Mosley BS, Nuckols JR. 2006. Agricultural Pesticide Use and Hypospadias in Eastern Arkansas. *Environ Health Perspect*. doi:10.1289/ehp.9146. [Online 6 July 2006]
6. Luben TJ, Olshan AF, Herring AH, Jeffay S, Strader L, Buus RM, Chan RL, Savitz DA, Singer PC, Weinberg HS, Perreault SD. 2007. The Healthy Men Study: an Evaluation of Exposure to Disinfection By-Products in Tap Water and Sperm Quality. *Environ Health Perspect*. doi:10.1289/ehp.10120 [Online 22 May 2007]

NAME: Mary A. Ross

POSITION: Supervisory Health Scientist

EXPERTISE: Epidemiologist

MAJOR ACTIVITIES in NCEA: Branch Chief for NCEA-RTP EMAG

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Illinois at Chicago, School of Public Health, Chicago, IL	Ph.D.	1997	Environmental and Occupational Health Sciences
The College of William and Mary, Williamsburg, VA	M.A.	1982	Biology
The University of Notre Dame, Notre Dame, IN	B.S.	1980	Biology

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2006 - Present	Supervisory Health Scientist	EPA/ORD/NCEA	RTP, NC
1997-2006	Health Scientist	EPA/ORD/OAQPS	RTP, NC

SELECTED AWARDS and HONORS:

2007: EPA Gold Medal; Particulate Matter NAAQS Team

2006: EPA Administrator's Award for Excellence, developing new and innovative analysis tools as part of the Economic Analysis Tool Team

2004: EPA Bronze Medal, ORD Five-year PM Accomplishments Team

2002: EPA Bronze Medal for Commendable Service, Litigating challenges to national ambient air quality standards

INVITED LECTURES/SYMPOSIA:

Invited speaker: Overview of Fine Particle-Related Health Effects. Society for Automotive Engineers Annual Meeting, Washington, DC. May 2004.

Invited speaker: Integrating the Effects of Pollutant Gases and PM Components. Health Effects Institute Annual Conference, San Francisco, California April 2006.

NAME: Lori White

POSITION Health Scientist

EXPERTISE: Health effects of criteria pollutants, neurotoxicology

MAJOR ACTIVITIES in NCEA: Principal author of Lead, Ozone, PM, and NO_x AQCDs and the PM Provisional Assessment. Lead, Ozone, and PM Team Leader.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
George Mason University	BS	1976	Biology
University of North Carolina – Chapel Hill	PhD	1995	Physiology
Project Management Institute	PMP®	2006	Project Management

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2003 – present	Health Scientist	EPA/ORD/NCE	RTP, NC
1997 – 2003	Biologist	A	RTP, NC
1995 – 1997	Postdoctoral Fellow	EPA/ORD/NHEERL/NTD University of North Carolina	Chapel Hill, NC

SELECTED AWARDS and HONORS:

Bronze Medal, 2004, NCEA PM Air Quality Criteria Team
S-Awards, 2004 (2), 2005 (2), 2006 (2), 2007 (1)
QSI, 2006

INVITED LECTURES/SYMPOSIA:

2006 SOT meeting co-chaired symposium – *New Concepts in the Neurotoxicology of Lead* White, L.D., Cory-Slechta, D.A., Gilbert, M.E, Tiffany-Castiglioni, E., Zawia, N.H., Virgolini, M., Rossi-George, A., Lasley, S.M., Yian, Y., Basha M.R.
2007 ISEE Symposium, *Overview of Health Effects Associated with Exposure to Lead*, James Brown, Robert Elias, Lester Grant, Jee Young Kim, Dennis Kotchmar, Anuradha Mudipalli, Srikanth Nadadur, Mary Ross, David Svendsgaard, Lori White

RELEVANT PROFESSIONAL ACTIVITIES:

Society of Toxicology (Risk Assessment and Neurotoxicology Specialty Sections)
North Carolina Society of Toxicology
North Carolina Society for Neuroscience
Project Management Institute
Genomics Technical Framework: A Guidance Document for Microarray-Based Analyses
Use of Toxicogenomics Data in Risk Assessment: Workshop and Case Study for a Chemical in the Androgen-Mediated Male Reproductive Development Toxicity Pathway

PEER –REVIEWED PUBLICATIONS:

Peer Review Journal Articles:

White, L.D., Cory-Slechta, D.A., Gilbert, M.E, Tiffany-Castiglioni, E., Zawia, N.H., Virgolini, M., Rossi-George, A., Lasley, S.M., Yian, Y., Basha M.R. (2007) New and evolving concepts in the neurotoxicology of lead. *Toxicol. Appl. Pharm.* Invited review. Submitted.

Meachum, C.A., **White, L.D.**, Barone, S., Jr., Shafer, T.J. (2003) Ontogeny of voltage-sensitive calcium channel α_{1A} and α_{1E} subunit expression and synaptic function in rat central nervous system. *Developmental Brain Research* .142: 47-65.

Book/Book Chapters:

White, L.D., Hunter, S., Miller, M.W., Ehrich, M.F., Barone, S. Jr. (2004) The role of apoptosis in neurotoxicology. Tiffany-Castiglioni, E., Ed. *In Vitro Neurotoxicology: Principles and Challenges*. Humana Press, Totowa, New Jersey.

Agency Documents:

Mudipalli, A., Nadadur, S., **White, L.D.**, Chapter 5 – Toxicological Effects of Lead in Laboratory Animals and In Vitro Tests Systems. U.S. Environmental Protection Agency. Air Quality Criteria for Lead (final). EPA/600/R-5/144aF. ORD/NCEA, Research Triangle Park, NC (2006)

Grant, L.D., **White, L.D.**, Kim, J.Y., Kotchmar, D.J., Nadadur, S., Ross, M., Bellinger, D., Hasselblad, V., Rosen, J. Chapter 8 – Integrative Synthesis: Lead Exposure and Health Effects. U.S. Environmental Protection Agency. Air Quality Criteria for Lead (final). EPA/600/R-5/144aF. ORD/NCEA, Research Triangle Park, NC (2006)

Grant, L.D., **White, L.D.**, Lewis, T., Executive Summary. U.S. Environmental Protection Agency. Air Quality Criteria for Lead (final). EPA/600/R-5/144aF. ORD/NCEA, Research Triangle Park, NC (2006)

U.S. Environmental Protection Agency. Provisional Assessment of Recent Studies on Health Effects of Particulate Matter Exposure (final). EPA/600/R-06/063. ORD/NCEA, Research Triangle Park, NC (2006)

Overton, J., Brown, J.S., **White L.D.**, Chapter 4 – Dosimetry, Species Homology, Sensitivity and Extrapolation. U.S. Environmental Protection Agency. Air Quality Criteria for Ozone and Related Photochemical Oxidants. EPA 600/R-05/004aF. ORD/NCEA, Research Triangle Park, NC (2006)

White, L.D., Raub, J., Bhalla, D., Cross, C., Cohen, M., Chapter 5 – Toxicological Effects in Laboratory Animals and In Vitro Test Systems. U.S. Environmental Protection Agency. Air Quality Criteria for Ozone and Related Photochemical Oxidants. EPA 600/R-05/004aF. ORD/NCEA, Research Triangle Park, NC (2006)

Nadadar, S., Grant, L.D., Kim, J.Y., Pinto, J., Ross, M., **White, L.D.**, Brown, J.S., Chapter 8 – Integrative Synthesis: Exposure and Health Effects. U.S. Environmental Protection Agency. Air Quality Criteria for Ozone and Related

Photochemical Oxidants. EPA 600/R-05/004aF. ORD/NCEA, Research Triangle Park, NC (2006)

Chen, L.C., Gordon, T., McGrath, J., Nadziejko, C., Grant, L.D., **White, L.D.**, Brown, J.S., Wilson, W.E., Chapter 7 – Toxicology of Particulate Matter in Humans and Laboratory Animals. U.S. Environmental Protection Agency. Air Quality Criteria for Particulate Matter. EPA/600/P-99/002aF ORD/NCEA, Research Triangle Park, NC (2004)

Wilson, W.E., Grant, L.D., Brown, J.S., Comfort, B., Garner, J.H.B., Hemming, B., Kotchmar, D.J., Pinto, J.P., **White, L.D.** Chapter 9 – Integrative Synthesis: Particulate Matter Atmospheric Science, Air Quality, Human Exposure, Dosimetry, and Health Risk. U.S. Environmental Protection Agency. Air Quality Criteria for Particulate Matter. EPA/600/P-99/002aF ORD/NCEA, Research Triangle Park, NC (2004)

Other Government Documents:

Genomics Technical Framework: A Guidance Document for Microarray-Based Analyses

NAME: Lindsay Wichers

POSITION: Physical Scientist

EXPERTISE: Cardiovascular and respiratory physiology

MAJOR ACTIVITIES in NCEA: Contribute to the toxicology sections of the Integrated Science Assessments and support documentation for Criteria Air Pollutants and most recently, the “Provisional Assessment of Recent Studies on Health Effects of Particulate Matter Exposure.” Assist in the creation of a literature database of relevant health studies involving the Criteria Air Pollutants. Develop the All-Ages Lead Model that will be used to evaluate the health risks associated with exposure to environmental lead. Supervise student interns.

EDUCATION/TRAINING:

Institution	Degree	Year	Field of Study
University of Idaho, Moscow, ID	BS	1998	Environmental Science
University of North Carolina, Chapel Hill, NC	MSPH	2003	Environmental Science and Engineering
University of North Carolina, Chapel Hill, NC	PhD	2005	Environmental Science and Engineering

RELEVANT PROFESSIONAL EXPERIENCE:

Years	Position Title	Organization	Location
2007 – Present	Physical Scientist	EPA/ORD/NCEA	RTP, NC
2005 – 2007	ORISE Post-doctoral Fellow	EPA/ORD/NCEA	RTP, NC
	Graduate Student	EPA/ORD/NHEERL	RTP, NC
2000 – 2005	Environmental Scientist	TerraGraphics Environmental Engineering, Inc.	Moscow, ID
1998 – 2000			

SELECTED AWARDS and HONORS:

Delta Omega Honor Society in Public Health — Un. North Carolina Chapter, 2006.

Mary O. Amdur Student Award Recipient — Inhalation Specialty Section, Society of Toxicology, 2005.

Graduate Traineeship — U.S. EPA, NHEERL/UNC Coop. Training in Environ. Sci. Research, 2000–2005.

INVITED LECTURES/SYMPOSIA:

Speaker – Effects of Instilled and Inhaled Particulate Matter on Cardiovascular and Thermoregulatory Parameters in Rats. Radiotelemetry User's Group Symposium, RTP, NC, January 2005.

Speaker – Health Effects of Particulate Matter: Changes in Cardiovascular and

Pulmonary Function. University of North Carolina Department of Environmental Sciences and Engineering seminar, Chapel Hill, NC, October 2003.

RELEVANT PROFESSIONAL ACTIVITIES:

Selected Conference Presentations

Wichers, LB, JP Nolan, DW Winsett, UP Kodavanti, MCJ Schladweiler, DL Costa, and WP Watkinson. Effects of acute exposure to concentrated ambient particulates on cardiopulmonary, thermoregulatory, and biochemical parameters in healthy and monocrotaline-treated sprague-dawley rats. *Am. J. Respir. Crit. Care Med.* 167:A38, 2003 (poster presentation).

Wichers, LB, JP Nolan, WH Rowan, MJ Campen, TP Jenkins, DL Costa, and WP Watkinson. Effects of instilled emission particulate matter on electrocardiographic indices and heart rate variability in Spontaneously Hypertensive (SH) rats. *Toxicologist* 78:83, 2004 (platform presentation).

Wichers, LB, WH Rowan, DL Costa, MJ Campen, and WP Watkinson. Effects of induced respiratory changes on cardiac, ventilatory, and thermoregulatory parameters in healthy Sprague-Dawley rats. *Am. J. Respir. Crit. Care Med.* 169:A642, 2004 (poster presentation).

Wagner, JG, **LB Wichers**, M Morishita, AC Rhor, GJ Keeler, and JR Harkema. Exposure to Concentrated Air Particles from urban air alters heart rate variability in Spontaneously Hypertensive rats. *Toxicologist* 84(S-1):438, 2005 (poster presentation).

Wichers, LB, WH Rowan III, JP Nolan, UP Kodavanti, MCJ Schladweiler, AD Ledbetter, DL Costa, and WP Watkinson. Characterization of doxorubicin and isoproterenol in Spontaneously Hypertensive rats as a potential model of heart failure for particulate matter studies. *Am. J. Respir. Crit. Care Med.* 2(Abtract issue):A170, 2005 (poster presentation).

Wichers, LB, GL Diamond, JS Brown. Comparison of observed and predicted blood lead levels following lead paint abatement. *Toxicologist.* 96(1): 1638, 2007 (poster presentation).

Professional Societies

Member, Society of Toxicology (2002–present)

Member, American Physiological Society (2001–present)

Member, Sigma Xi (2003–present)

PEER-REVIEWED PUBLICATIONS:

Peer Review Journal Articles

Wichers, LB, JP Nolan, DW Winsett, AD Ledbetter, UP Kodavanti, MCJ Schladweiler, DL Costa, WP Watkinson. Effects of Instilled Combustion-Derived Particles in Spontaneously Hypertensive Rats. Part I: Cardiovascular Responses. *Inhal. Toxicol.* 16(6-7): 391-405, 2004.

Wichers, LB, JP Nolan, DW Winsett, AD Ledbetter, UP Kodavanti, MCJ Schladweiler, DL Costa, WP Watkinson. Effects of Instilled Combustion-Derived Particles in

Spontaneously Hypertensive Rats. Part II: Pulmonary Responses. *Inhal. Toxicol.* 16(6-7): 407-419, 2004.

Wichers, LB, AD Ledbetter, JK McGee, RB Kellogg, WH Rowan III, JP Nolan, DL Costa, W.P. Watkinson. A Method for Exposing Rodents to Resuspended Particles Using Whole-Body Plethysmography. *Part. Fibre Toxicol.* 3(1): 12, advance access (doi:10.1186/1743-8977-3-12), 15 August 2006.

Wichers, LB, WH Rowan III, JP Nolan, AD Ledbetter, JK McGee, DL Costa, WP Watkinson. Particle Deposition in Spontaneously Hypertensive Rats Exposed Via Whole-Body Inhalation: Measured and Estimated Dose. *Toxicol. Sci.* 93(2):400–410, 2006.

Rowan, WH III, MJ Campen, **LB Wichers**, WP Watkinson. Heart Rate Variability in Rodents — Uses and Caveats in Toxicological Studies. *Cardiovasc. Toxicol.* In press.

Wichers, LB, C Lee, DL Costa, WP Watkinson, JS Marron. A Functional Data Analysis Approach for Evaluating Temporal Physiologic Responses to Particulate Matter. *J. Appl. Physiol.* Submitted May 2007.

Agency Documents/Assessments

U.S.EPA. Provisional Assessment of Recent Studies on PM, EPA/600/R-06/063, 2006